An exploratory study of sexual and reproductive health knowledge, information-seeking behaviour and attitudes among Saudi women: A questionnaire survey of university students

By

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Thesis submitted to Queen Mary University of London for the degree of Doctor of Philosophy

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Abstract

Background: In Saudi Arabia, women's sexual and reproductive health (SRH) is an area, which is usually linked with morality, tradition and religion. This can influence the provision of SRH education or services. Little is known about the knowledge, needs, attitudes or practices of Saudi women in relation to their SRH. Furthermore, earlier studies from other Arab countries had failed to consider married and single women separately. This exploratory study aimed to provide the basis for further research on the SRH of Saudi women, both single and married.

Study design: A cross-sectional questionnaire study was conducted, using a translated and piloted anonymous questionnaire in 2013-14. Participants were female students, single and married, at universities in the city of Riyadh. Ethical approvals were granted in Riyadh and the UK.

Result: Three hundred and sixty-five students from four of the 13 universities in Riyadh (two governmental and two private) completed questionnaires. SRH knowledge varied widely among participants, with many holding serious misconceptions. 84.1% had a poor general SRH knowledge where single students were more likely to have low knowledge than married ones. While the level of knowledge for married students was higher than among the singles and a poor level of STI knowledge was found to be more among students at private universities, undergraduate and who's never been married before. Age, marital status, level of study, type of university and having watched films or seen photographs depicting sexual activities were predictors of knowledge level.

Discussion: This study provides, for the first time, fundamental information concerning Saudi female students' SRH knowledge and information-seeking behaviour its contributed to knowledge for the first time by looking into single and married women. These findings reveal the limited understanding of the SRH needs and problems of this particular group.

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Declaration

I hereby declare that this submission is my own work and that, to the best of my knowledge, it contains no material previously published or written by another person except where work which has formed part of jointly authored publications has been included, nor material which to a substantial extent has been accepted for the award of any other degree of the university or other institute of higher learning, except where due acknowledgement has been made in the text.

Dedication

To my parents, who believed in me, supported me by all means and gave me the strength to continue this journey to the end. I love you both.

Acknowledgements

Thanks go first to God Almighty, Allah the most merciful, compassionate and gracious, for enabling me to conduct this research. Special thanks are also due to all members of my family – my mother, my father, my sisters and brothers, my nieces and nephews – for their encouragement and unlimited support. I love each of you!

I would like to thank my supervisor, Dr. Catherine Meads, as well as Dr. Paul Allen, for their support and assistance throughout this endeavour. I am grateful for their support, guidance and encouragement. It was an honour to work with you.

Finally, I would like to extend special thanks to Professor Della Freeth, for her continuing guidance throughout the dissertation process. She spent many hours patiently helping me, especially during the most difficult times. Her nonstop encouragement and inspiration gave me the strength and the confidence to reach my goal. Thank you, Prof.

Abbreviations

ANOVA	Analysis of variance
BME	Black and minority ethnic
CV	Cervical cancer
EPPI-Centre	Evidence for Policy and Practice Information
FGM	Female Genital Mutilation
FP	Family planning
HPV	Human papillomavirus
MDGs	Millennium Development Goals
MENA	Middle East and North Africa
MLR	Multiple logistic regression
MOH	Ministry of Health
PHC	Primary health care
RQ	Research question
SD	Standard deviation
SRH	Sexual and reproductive health
STI	Sexually transmitted infection
STD	Sexually transmitted disease
UAE	United Arab Emirates
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
WHO	World Health Organisation

Glossary of Terms

Abaya	Long black dress covering all of a woman's body
Allah	The name of God in Islam
Hijab	Veil
Mehr	Dowry
Mahram	A man who is ineligible to marry a particular woman
Prophet	The Prophet Muhammad, the Messenger of God. Any formal reference to the Prophet is usually followed by the phrase 'Peace be upon him' or the abbreviation PBUH
Quran	The Holy Book of Islam: the highest and most authentic authority in Islam. Quotations from the Quran are normally followed by a reference to the numbers of the chapter (sura) and verse (aya) quoted.
Sharia	Islamic jurisprudence
Wali	Guardian
Fitnah	Sexual temptation
Majlis Al-Shura	A legislative body that advises the King on issues important to Saudi Arabia. It is a modern version of a tradition Islamic concept: an accessible leader consulting with learned and experienced citizens.

Definitions

Reproductive health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes" (WHO, 2002).

Sexual health is "a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled" (WHO, 2002).

Attitude is "a relatively enduring organization of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols" (Hogg & Vaughan, 2005, p. 150), or "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour".

Motivation and objective of the study

The inspiration for this journey started when I worked in a tertiary hospital as a clinical health educator, focusing on women's sexual and reproductive health (SRH) care. My contact with women and my observations during this time suggested that the majority of women attending the hospital lacked basic knowledge regarding their SRH. I also felt that they were not receiving the care and the information they deserved, as it seemed to me that the professional staff often neither understood their problems nor recognized their needs. Underlying this lack of knowledge on the part of both professionals and the public was the social taboo surrounding this topic, which also meant that women did not know where to go to seek such services, further compounding their ignorance of SRH matters.

This background challenged me to investigate the matter further in order to test and to elaborate on my initial view of Saudi women's SRH issues. Noting the lack of expertise and programmes of SRH education and promotion in Saudi Arabia, I concluded that in order to improve my professional skills and knowledge in this area I would need to undertake more study. I therefore travelled to the UK, where I completed a master's degree and followed this by undertaking a doctoral research programme.

During my studies, I had become increasingly convinced of the need to improve women's health status, particularly their SRH, and to improve the understanding of the concept of sexual health education in Saudi Arabia. For the reasons outlined above, most health professional appeared to lack the confidence and skills to provide this service to women. It seemed to me that even the best-qualified professionals were reluctant to address women's SRH, as they were afraid of being judged or perhaps punished by the law if they did so.

When I subsequently discussed this issue with some colleagues, they agreed that this area was in great need of more work, so I decided to engage in a study that addressed the issues of Saudi women's SRH awareness and knowledge. I chose to begin with a small-scale study among female university students, intending that this first step would lead to further research in this field in the future. This initiative has been welcomed and contested at the same time, leading to additional arguments and raising the dual question: Do we need to conduct research in this area, and if so, why?

Study objective

This thesis aims to explore and identify the SRH-related knowledge, information-seeking behaviour, attitudes and needs of Saudi female university students, through a questionnaire survey of a sample of this population.

Contribution of the thesis

This thesis contributes to the study of Saudi women's SRH in a number of ways. First, those studies of reproductive health, which have been conducted in Saudi Arabia to date, have addressed only pregnancy and its outcomes, or contraception usage (Al-Othman, Saeed, Bani, & Al-Murshed, 2002; Mahfouz et al., 1994; Sherine Shawky & Milaat, 2001).

The first important original contribution of this thesis is that it addresses the paucity of studies in this area, especially concerning women's knowledge, attitudes and information needs in regard to their SRH. It thus begins to bridge significant gap in knowledge.

This study also highlights the wider social, political and religious processes within Saudi Arabia. Thirdly, the inclusion in the research sample of both single and married students at both private and state universities provides rich data on the commonalities and differences among these groups in regard to their knowledge of SRH, their sexual attitudes and their related needs. Through its focus on some social and cultural elements, this thesis also contributes to the sociology of health by adding significantly to the growing body of literature on SRH promotion.

Finally, the difficulties faced by the researcher during the course of this study were gaining access to study sites and researching this particularly sensitive topic in a conservative community. There was thus a constant need to contest such matters as to who has or should have the power to control and define what is acceptable, moral or taboo. This means that the thesis is able to make an important contribution to debates on personal and social boundaries while researching sensitive topics in Saudi society.

An overview of the thesis

This thesis presents an exploratory study of sexual and reproductive health knowledge, information-seeking behaviour and attitudes among Saudi women in eleven chapters: **Chapter 1** introduces the study, its background and context; **Chapter 2** comprises a systematic review of SRH knowledge and information-seeking behaviour among Middle Eastern female university students; **Chapter 3;** discusses the methods used in this study **Chapter 4**; presents the main findings of the study; **Chapter 5**; Answers to research questions and hypotheses **; Chapter 6** ; **s**tates the position of the researcher in this study **Chapter 7**; draws conclusions from the study and makes recommendations.

Chapter 1

Context of the study: the Kingdom of Saudi Arabia

This chapter offers a multifaceted overview of the study context, Saudi Arabia.

1.1 Profile of Saudi Arabia

The Kingdom of Saudi Arabia is a rapidly developing country with considerable economic and human resources, considered one of the wealthiest Arab countries in the Middle East. Saudi Arabia's economy is highly dependent on oil demand and pricing beyond its borders. The country has the largest reserves of oil in the world and is considered the largest oil exporter in the world ("Royal embassy of saudi arabia ,washington DC," 2011). As the map in Figure 1.1 shows, it occupies the majority of the Arabian Peninsula in the Southwest of Asia and covers approximately 900,000 square miles, most of which is desert. The population is estimated at 29 million, of whom 49.1% are female. Life expectancy was reported in 2013 to be 75.1 years for females and 72.7 years for males. The improvement over the equivalent 2002 figures of 73.4 and 69.9 years reflects general progress in national health indicators with annual growth rate of 2.7% the age demographics distribution as following; 10.85% are 0–4 years old, while 19.52% are between 5–14, further the majority 66.89% are between 15–64, and only 2.73% are aged 65 and above (Ministry of health, 2012).

Figure 1.1 Saudi Arabia map

The total fertility rate was estimated at 2.9 in 2013 compared to 4.3 in 2002, with a maternal mortality rate of 1.43 per 10,000 live births (Ministery of health , 2013). Fertility declined from 7 children per woman in 1980-1985 to 3.8 in 2005. It is estimated that total fertility will decline further to 1.85 children per woman in 2040-2045 (United Nations, 2008).

King Abdul-Aziz Ibn Abdurrahman Al Saud established the Kingdom in 1932. Arabic is the official language of the state and Islam the official and dominant religion. Saudi Arabia is an Islamic monarchy based on the principles of the Quran (Islam's holy book) and the *Sharia* (Islamic law). Saudi Arabia has never been a colony of any foreign power, nor was it a state of the Ottoman Empire; the country resulted from an indigenous process of social, political and religious reform. Saudi Arabia has a strong tribal dimension because the ruling Al Saud family is of tribal origins (Al-Farsy, 1982).

Saudi Arabia has witnessed major socioeconomic development, particular progress having been made in health, education, housing and the environment. The country now enjoys a modern infrastructure with an extensive network of motorways, roads, airports

and seaports, as well as a large number of major industrial complexes that can be seen across the country. The capital city, Riyadh, has a population of over 7 million (Central department of statistics & information, 2013).

This chapter has begun to set out the contextual background to the study, describing the profile of Saudi Arabia. The next section describes the context of women lives in Saudi Arabia.

1.2 women's in Saudi Arabia

Islam has given women a social and educational status much "higher and more honourable than those conferred on her by other creeds" (Hariri, 1987, p. 52). However, Islam does not allow free interaction and mixing of men and women, as is the case in the Western world. This restriction on the meeting of men and women is seen as a means of preventing many social evils. Yamani (1996) argues that woman's rights are restricted now and again in most Muslim countries in accordance with social and religious norms. One example of these restrictions is the variation between the Islamic schools in regard to marriage law: only the Hanafi School gives a woman the right to marry without the permission of her guardian (*wali*). This reflects how women's rights and freedoms are contingent upon religion, social rules and taboo.

Hamdan (2005) maintains that no aspect of Saudi society has been the focus of more attention and debate in recent years than women and their role in the development of the family unit. This debate has been so heated that it has caused a great deal of controversy between progressives and conservatives in this society. On one hand, according to Pharaon (2004), large amounts of "ink and energy" have been expended recently in order to pinpoint and signal the harms and disadvantages that changing the roles of women in this society can bring about. In contrast, considerably less effort has been

made to assess the extent of the changes that have already taken place in this context. For example, no proper assessment has been made of the positive changes that have taken place in education and employment.

It may seem obvious that the status of Saudi women in terms of the absence of participation in larger socio-economic contexts may be attributed to certain social, religious and cultural factors, which will be discussed in further detail. The reality, however, according to Pharaon (2004), is that women in Saudi Arabia need to seek some change in their overall status and that this is something that a great number of them are now actively seeking. However, this change needs to occur in parallel with their evolving roles in society. To this end, traditional barriers need to be discarded or redefined. This argument also voiced by Achoui (2001), with the slight difference that Saudi women's roles have remained traditional in the face of their changing roles.

Yamani and Allen (1996) conclude that Saudi women continue to be excluded from full participation, whether by religious or political power structures, although these restrictions have not prevented them from benefitting in some areas where there is room for manoeuvre, as will be explored next. They offer an example of how women's position in Saudi Arabia differs from that in other Gulf countries:

> As for Saudi women, they are the most deprived in the gulf region. Saudi Arabia implements very strict rules concerning women and the family. It is the only state where women are not allowed to drive cars; this makes them totally dependent on a husband, a close male relative, or a hired driver. (Yamani & Allen, 1996, p.112)

The following sections briefly explore the achievements of Saudi women in education and employment, then explain the concepts of veiling and touch and assess their effect on gender roles in Saudi society and on women's position in the community. As it is

vital to understand those issues related to women in order to provide them with SRH services or educational programme.

1.3 Education

In certain parts of the country, girls' schools were initially looked on unfavourably, as the popular belief held non-religious education to be useless, if not dangerous. This attitude reflected itself in the ratios of registration at primary school in 1960: 22% for boys and 2% for girls. This attitude changed dramatically in the space of a few years, however, with increasing awareness of the benefits of education for both genders. Metz (1993) reports that this change enjoyed popular support across the country to the extent that school enrolments were reported at 81% for boys and 43% for girls in 1981. Al-Torki (1986) states that the girls who first went to school in the mid-1940s came from privileged families who had lived abroad for a certain time, while Yamani (1996) reports that in the 1960s the first schools for girls opened in Jeddah, sponsored by Princess Iffat, King Faisal's wife. This schooling, however, remained under the control and supervision of the Department of Religion until 2002, whereas boys' education came under the Ministry of Education. Hamdan (2005) explains that this was done in order to keep women on the correct path, in line with the original purpose of their education, i.e. to make good wives and mothers of them. On the other hand, today's young Saudi females face a detachment between their educational preparation and their responsibilities as housewives. As a result, this younger generation is seeking to redefine its social identity and role (Yamani & Allen, 1996).

Metz (1993) asserts that the destiny of women in this context has always been tied to ideology and religion, even in terms of the country's official policy, which holds that "the purpose of educating a girl is to bring her up in a proper Islamic way so as to perform her duty in life, be an ideal and successful housewife and a good mother, ready

to do things which suit her nature such as teaching, nursing and medical treatment". Similarly, the policymakers claim to recognise the right of women to obtain a 'suitable' education to place them on an equal footing with men in the light of Islamic laws. This seems to be in slight contradiction to the previous statement, as the reduction of choice in one's desired subject of study, such as engineering and law, is at odds with the pursuit of societal equality.

Metz (1993) also notes that in practice, the choice of modules of study at the pre-college level is identical between boys and girls, with the exception that only boys select, or are encouraged to select, physical education, while only girls select home economics. It should also be mentioned that school attendance is not compulsory for either gender in Saudi Arabia.

The Saudi Council of Senior Scholars or *Ulama*, an officially appointed group of religious experts operating in the Department of Religious Research, Missionary Activities and Guidance, was particularly concerned about women travelling abroad for educational purposes. The Council rejected the possibility of government scholarships for women's education abroad in 1982. Metz (1993) explains that women were allowed to travel abroad for educational purposes only if accompanied by a close male relative acting as a *mahram* (guardian), through the enforcement of the law of guardianship.

Mobaraki and Soderfeldt (2010) report recent statistics showing that women have overtaken men in education. Nevertheless, this still leaves 30% of women in the country illiterate, which can be traced back to the persistent opposition of certain groups to the educational development of women in general and the imposition of rules such as *mahram*. The issue of the prevalence of obesity among Saudi women has also been associated with their exclusion from sports at school, coupled with certain social norms

and beliefs holding the participation of women in public physical activities to be inappropriate.

Lastly, Bahry (1982) has asserted that the continued and extended education of women in life has the potential to jeopardise their chances of marriage. It is believed that a woman's educational development and betterment may have a direct relationship with her future desirability as a wife or housewife, i.e. the association of feelings of arrogance and perhaps independence within the educated female population. All of this reduces an educated woman's chances of being married. The other side of the coin is that a Saudi man may find it difficult to live with a woman who is well-educated, demands equal status and enjoys the kind of intellectual independence that only men have traditionally enjoyed.

1.4 Employment

Despite the limitations imposed on Saudi women by gender segregation at work, their career opportunities and prospects have improved. The proportion of people in employed positions who were women was a mere 7% in 1990, in banks exclusively designated for women, utility and computer operations, television and radio programmes, as well as certain ministries. Then, in the early 1990s, women began to take positions as office assistants, journalists, teachers and administrators in girls' schools, university lecturers and social workers; but the majority of such positions are still held by men, not women.

In the field of healthcare, women have been employed as doctors, as pharmacists and in recent years as nurses. Approximately 3,100 women have been trained and employed as nurses, representing 10% of the country's total number of nurses. Metz (1993) suggests that the rise in the number of women employed in nursing is indicative of a positive

change in the attitudes of Saudi families towards the profession, however small, as well as the presence of limits to sex segregation. This is an achievement in the Saudi context, where in the 1970s nursing was frowned upon as a profession for women due to the potential contact they might have with male doctors and patients. This led to a strict ban on the employment of female Saudi students in the nursing profession. This issue is related to the public disapproval of women and men working together, a widespread phenomenon in most Muslim countries.

However, the state of affairs has dramatically changed in more recent years. Pharaon (2004) highlights the growing influence and economic contribution of women, who run approximately 10% of Saudi private enterprises. Again, this contrasts sharply with their deprivation of certain basic rights in the public domain. For instance, a female business manager is still not permitted to drive and must meet the extra expense of hiring a male driver in order to be able to conduct her daily business; nor is she allowed to travel without the written consent of her male guardian, usually her father, husband and sometimes her son. Therefore, despite women's extraordinary progress in medicine, education, employment and promotion, discrimination is still present at the top level.

Bahry (1982) examines the situation of women in employment from a different perspective, outlining other indirect problems that can arise from this. One option left for ambitious women to avoid the driving ban without the trouble and expense of a male driver would be to use public transport, but this is not widely available. Another problem is the scarcity and unpopularity of crèches for women to leave their children while at work. Besides, this would mean a radical departure from the traditional place of women as housewives and child-bearers, requiring an understanding husband to make it possible against all the odds.

In conclusion, it can be said that significant positive steps have been taken towards a fairer inclusion of women across a number of areas and the hope is that this trend will continue, to enable a more equal platform for women to perform at all levels. The following section addresses the topic of women's dress code, as it is another symbol of the mechanisms and dynamics of Saudi society.

1.5 Veiling

In Saudi society, the wearing of a veil to cover the face has always been an obligation for women. However, this practice is undergoing change among younger women, to the point where women are no longer necessarily obliged to cover their faces in public. Al-Torki (1986) states that when the wearing of the veil is questioned and the reasons for it are sought, both males and females in favour of the practice would say that it is a requirement of the religion and of Saudi society.

Another reason that Al-Torki (1986) advances for the practice of veiling in this context is the 'explicit theory' of sexual interaction in Islamic culture. Based on this theory, she maintains that men are regarded as sexually aggressive and that women are veiled in order not to arouse men to disorderly behaviour or *fitnah*. This term can also be translated as 'sexual temptation', which turns the situation round and puts the focus on women as the source of arousal, distraction and destruction. In other words, going by the second interpretation of *fitnah*, it is women who are held as aggressive, which implies that a man is in a weaker position when interacting with an unveiled woman.

The concept of the veil or *hijab* has three interconnected dimensions. According to Pharaon (2004), the first dimension lies in the literal meaning of the word, which is 'hiding'. Therefore, this first dimension is about hiding the face from sight. The second concerns the idea of separation or constructing a boundary, while the third is an ethical

dimension, having the connotation of something forbidden. Bearing all three dimensions in mind, Pharaon (2004) argues that the concept and practice of veiling have wider meanings in Saudi Arabia and are so firmly grounded in the fabric of Saudi society that the Hijab is indisputably regarded as a symbol of faith and religious conviction.

1.6 Gender roles

Both male and female genders are regarded by the Holy Quran as having their origins in one living being and this is why the Quran confers equal status on them. Engineer (1992) notes that the two genders are considered equal, which is equivalent to a belief in equal dignity for males and females. In addition to this basic belief, equality must be reflected across all social, economic and political spheres. One example of placing males and females on an equal footing is granting both genders the right to enter and to exit a marriage contract; another is the freedom to own or disown property of their own free will.

The concepts of chastity and sexual modesty have significant implications for gender roles. Metz (1993) states that these fundamental principles are primarily associated with women, then with men, and comprise the central constructs of both the ever-important family honour and religious obligation. Modesty is a concept that is significantly emphasised in the Holy Quran to be adopted by women and to a lesser extent by men, as women are held responsible for *fitnah*. This is an attitude that has long been held in the Middle East and which has taken its current religious significance from the interpretations of Islamic theology.

Thus, the mechanisms of veiling and gender segregation are implemented to promote sexual modesty and to prevent *fitnah*. The wider practical effect of their implementation, however, is to sustain women's dependence on men. Although Saudi

families can be seen to differ in the intensity of practice, these mechanisms have always existed and are effectively universal. Indeed, this segregation is so deep-rooted that it has become a moral imperative, ensuring women's continuing dependence on men, particularly in issues that concern the public domain, such as driving.

1.7 Women's position in the community

The direct implication of the role of women in the family unit manifests itself in the wider context of women's ultimate position in the community. This manifestation can be seen as a spectrum with the conservative viewpoint at one end and the liberal one at the other. The former has at its core the complete segregation of men and women in the public realm. Bearing in mind the significant positive changes that have taken place over recent years, this conservative perspective has not totally ruled out women's education; however, conservatives believe that it should be limited to domestic skills, as discussed above. The liberal perspective, by contrast, seeks to transform 'separation values' into 'modesty values', meaning in practice that women are allowed to enter the wider arenas of work and education.

The Saudi government's regulation of women's conduct is based on enforcing the traditional values and functions discussed above, comprising various means of limiting women's role in society. This governmental regulation has its origins in the premise that unrelated men and women should not associate with each other, including the separation of boys and girls within the education system, the requirement that women have a male guardian to travel, that women hire a male manager to obtain a commercial business licence, that no woman should study abroad without a male guardian, check into a hotel alone or drive a car in the Kingdom. This segregation is widely practised in all public areas, including restaurants, mosques, universities, banks and shops, where there are

separate sections for women. It even goes to the extent of providing segregated lifts in buildings.

The major changes mentioned above came about as a result of the process of integrating women in development. This development has produced mixed results, however, with Saudi women enjoying only limited involvement in the work sector, while their legal right to equality remains unclear. Pharaon (2004) suggests a range of complex reasons for this; but at the centre of this argument lies the debate concerning the role of women in society within a framework of 'Arab-Islamic heritage'. According to Pharaon (2004), a schizophrenic approach has been adopted, whereby women are encouraged to become involved in the process, be noticed and make their presence felt on one hand, while on the other hand, their just and rightful presence is denied and they are treated as second-class citizens. An observation that can be made concerning this persistent dilemma is the clash between two debates: the practical debate as to the role of women in society and the ideological debate about the role of religion in society. Therefore, the resolution of this dilemma demands a significant amount of time in Saudi Arabia.

From the public point of view, people and their views can also be placed anywhere on the traditional-liberal spectrum. It should be noted that it is not only men who support the imposition of barriers to women in terms of their social involvement and roles; a great number of conservative women also resist change, or are fearful of the possibility of a more active role for women in society. Again, in defence of their beliefs, these two parties resort to religion and maintain that 'God wills it so' (*inshallah*, in Arabic). They even assert that women are born for motherhood and that they would be unsuitable and unprepared for any other role in life. Their underlying rationale, therefore, is that the whole social system would disintegrate if women were assigned any other role than that which they were born for, i.e. motherhood.

1.8 Marriage in Saudi Arabia

Yamani (1996, p. 77) maintains that "the main purpose of marriage in Islam is long-term cohabitation, procreation, the satisfaction of physical needs and the need for companionship that God has created within humanity". In Islam, marriage is a civil contract, not a sacrament, which requires that witnesses be present and that the husband pays the wife an agreed upon amount of money, jewellery or another valuable item as *mehr* (dowry). The contract may also specify an additional amount of money, payable by the husband in case of divorce. In the early 1990s, the amount of *mehr* stood between 25,000 and 40,000 Saudi riyals and this figure has significantly increased over time. A large number of couples disapprove of this aspect of the civil contract, however, and have agreed on a token sum to satisfy the legal requirements.

Certain other stipulations can be included in the contract. For instance, the wife-to-be can demand the right to divorce in case her husband seeks to practise polygamy by taking a second wife. In this context, however, divorce is usually initiated by the husband rather than by the wife. In the event of divorce, it is the father who takes custody of any children as long as they are at least seven years of age in the case of sons and nine years old in the case of daughters. There is no controversy over the assumption that children belong to the father as far as custody is concerned, but there is some disagreement as to the age at which they should be taken from their mother and reunited with their father (Yamani & Allen, 1996).

The divorce rate is rising in Saudi Arabia; Al-Saif (1997) reports that 17,528 divorces were registered in 1998, while the Ministry of Justice recorded 30,000 cases in 2012. Al-Saif proposes a number of reasons for this, including women increasing employment and activity in the public domain, interference and pressure by the immediate family, the practice of polygamy and sexual maladjustment. The newspaper *Al-Riyadh* (2006)

cites a team of researchers in Saudi Arabia as explaining that this sexual maladjustment might be due to the absence of any pre-marital sex education or other preparation for those about to be married, ultimately causing the increase in divorce cases.

Metz (1993) notes that a woman is legally considered to belong to the family of her birth throughout her life and this is why she does not take her husband's name but keeps that of her father.

With the emergence of a range of socio-economic changes across Saudi society, a number of challenges have surfaced, such as the increasing age of Saudi girls at marriage, the rising educational levels of many Saudi females and the demand by some families for a larger dowry. Bahry (1982) maintains that in spite of such challenges, marriage retains a special value in the life of Saudi women.

Traditionally, marriage was restricted to taking place between members of the same tribe and tribal background, with varying degrees of adherence across the country. It had to be arranged by parents or other relatives and it is traditional for the betrothed couple not to meet before their wedding night. However, it must be mentioned that the major pattern of marriage was that which took place between first cousins, particularly between the sons and daughters of paternal uncles, as discussed at greater length below. Mobaraki (2007) explains that the personal status law in Saudi Arabia makes it the responsibility of the father to care for an unmarried adult daughter; however, this responsibility shifts to the husband upon marriage. In the case of a widow with children, her sons must shoulder this responsibility if they have reached adulthood. This situation often gives rise to another undesirable situation, in which the widow is obliged to remarry in this male-dominated tribal community.

The next three subsections offer further details of three significant aspects of marriage in Saudi Arabia: early marriage, polygamy and consanguinity. They are followed by mention of a number of less common forms of marriage practised in the region.

1.8.1 Early marriage

Saudi Arabia is known to have a high rate of early marriages compared to other Arab countries. There is no minimum legal age for marriage in Saudi Arabia and many girls are married as soon as they reach menarche, i.e. their first menstrual period (Shawky & Milaat, 2000). The rate of early teenage marriage, which is defined as marriage under the age of 16 years, was found to be approximately 27.2% in Jeddah (S Shawky & Milaat, 2000). This practice, which is widespread throughout most of the Arab world, is related to traditional beliefs. Families prefer to marry their daughters at an early age, with culture, traditional values, virginity and family honour being the main reasons for this practice, according to Rashad (2005). Hamdan (2005) explains the extent of this problem within the Saudi community:

> Some young girls are forced to marry at a very young age. There is no law to prevent parents or a guardian from having their girls marry. This problem varies depending on the socio-economic level of the region and the traditions of the local tribes. There is no law in the country, as yet, that prohibits male guardians (for example, father or brother) from taking girls out of school. There is also no law to determine the age at which girls can marry (p. 59).

The following table shows the minimum legal age for marriage in some Arab and Islamic countries.

Table 1.1: Legal minimum age for females to marry in Iran and the Arab Countries[i]

(Years): Puberty	9	15	16	17	18	20	Unlegislated
Iran	Gaza	Kuwait	Egypt	Syria[ii]	Algeria	Libya	Bahrain
Sudan		West Bank		Tunisia	Djibouti[iii]		Oman
		Yemen			Iraq[iv]		Qatar
					Jordan[v]		Saudi Arabia
					Lebanon[vi]		UAE
					Morocco		

i All data, unless otherwise noted, has been retrieved from the Women's Learning Partnership for Rights, Development, and Peace (WLP) website at http://www.learningpartnership.org/legislat/family_law.phtml with information compiled from the Emory Islamic Family Law Project, http://law.emory.edu/IFL/,Data accessed 29 April 2005.

ii In Syria, women can be married at 13 with the permission of a judge.

iii UNFPA report on Djibouti acknowledges that the latest Djibouti Family Code legislates the female age of marriage at 18, see http://www.un.org.dj/UNFPA/ DJIBOUTI.pdf, accessed on 15 May 2005.

iv Women can get married in Iraq at 15 with parental consent.

v A temporary law in Jordan raised the age of marriage for both girls and boys to 18; this remains a temporary law until it is passed and endorsed by parliament

vi Lebanon allows marriage at younger ages based on religious affiliation or sect. As described on the Emory Islamic Family Law Project, "age of capacity is 18 years for males and 17 for females; scope for judicial discretion on basis of physical maturity and Wali's permission from 17 years for males and 9 for females; real puberty or 15/9 with judicial permission for Shi'a; 18/17 or 16/15 with judicial permission for Druze" from http://www.law.emory.edu/IFL/legal/lebanon.htm.

Source: Shepard and DeJong (2005, p.25)

El-Kak (2013) observes that the age of marriage for males and females in most Middle Eastern and North African (MENA) countries has risen in the past few years, for the following reasons: the growth in access to education, especially higher education, the impact of globalisation, especially on young people, and stronger economic performance, although economic improvements have differed between MENA countries.

Shawky and Milaat (2000) studied 386 women in Jeddah to assess the effects of early teenage pregnancy occurring as a result of early marriage on the outcome of pregnancy and women's health in general. They found twice the risk of spontaneous abortion, four times the risk of combined foetal death and infant mortality, and twice the risk of losing

pregnancies any time during their childbearing years among their sample. This high risk of poor pregnancy outcomes persisted throughout the participants' reproductive lives.

Moreover, early marriage cuts short a woman's education and chances of employment. Shawky and Milaat (2000, p. 46) state that early pregnancy "burdens the girl with frequent pregnancies, childbearing and excessive responsibilities at an immature age. These negative outcomes point to the imposition of tradition on women, especially on their health, which then will have an effect on their social life, education and psychological wellbeing".

A notorious case was reported in April 2009, in the town of Unaiza in Al-Qasim province, north of Riyadh, where an eight-year-old girl was married off by her father to a 50-year-old man, to pay off a debt between them. Human rights groups in Saudi Arabia were reported to be trying to convince the man to divorce the girl and seeking to put an end to other such cases in the region. A serious aspect of this case is that it reflects on the law and its implementation. A judge refused to grant this child a divorce, which shows how laws and regulations can sometimes face difficulty in being implemented, especially if they conflict with tradition and culture (The Guardian, 2008).

1.8.2 Polygamy

Polygamous marriages are legally recognised in Saudi Arabia in accordance with Islamic law, which allows a man to take up to four wives, provided that he treats them justly and equally. It should be remembered, however, that polygamy is neither compulsory nor widely advocated. It is simply permitted, with limitations and conditions (Badawi, 1976).

In some circumstances this permission proves extremely useful. Indeed, it is both honest and accurate to say that it is Islam that has regulated and limited this practice, making it

more humane by the establishment of equal rights and status for all wives. It is also evident that the general rule in Islam is monogamy and not polygamy. Thus, permission to practise limited polygamy is to be seen as consistent with Islam's realistic view of the nature of men and women of their varied social needs and problems, and of existing cultural variations (Badawi, 1976). This phenomenon has started to decrease in frequency in the Saudi community, due to urbanisation, education and the cost of living, according to Achou (2001). On the other hand, educated and employed women have now gained more independence and reject this possibility. Moreover, some young women and parents stipulate monogamy as a condition before marriage takes place (Georgas, Berry, van de Vijver, Kagitçibasi, & Poortinga, 2006).

Al-Krenawi & Graham (2000) examined the consequences that polygamous marriages could have on women. A sample of 352 Bedouin-Arab women participated in their study, which explored the functions of family life, marital satisfaction and mental health among women in polygamous and monogamous marriages. It found that women in polygamous marriages had significantly lower self-esteem and higher levels of phobias, depression and anxiety than those in monogamous marriages. In addition to the damage caused to marital relations and family functioning, these findings indicate the impact of such practices upon women's physical and mental health.

1.8.3 Consanguineous marriage

Another characteristic of marriage prevalent in Saudi Arabia is consanguinity, which refers to the marriage of two people with a recent common ancestor. In other words, this marriage involves individuals who are closely related (of the same blood). Consanguineous marriages are considered desirable and are strongly favoured in Saudi Arabia and certain other Middle Eastern countries. The frequency of these marriages differs within the Middle East, especially in Muslim countries, where it is calculated to

be from 20% to more than 50% of total marriages (Alwan & Modell, 1997). These differences are usually associated with race, religion and socio-cultural factors. For instance, first-cousin marriages constitute almost one third of all marriages in many Arab countries.

Some of the reasons why consanguineous or first-cousin marriage is considered preferable in Arab countries in general and in Saudi Arabia in particular are socio-cultural factors, such as maintenance of the family structure or name, keeping property and money within the family, the ease of marital arrangements and the establishment of better relations with in-laws. Financial advantages relating to dowry also seem to play a crucial role in the preference for consanguinity (Tadmouri et al., 2009). Table 1.2 shows how the proportion of first-cousin marriages varies among some Arab countries.

Table 1.2: First-cousin marriage in various Arab countries

Country	**Average frequency of first-cousin marriages (%)**
Algeria	10-16
Bahrain	21
Egypt	12.4
Iraq	29.2
Israeli Arabs	22
Jordan	32
Kuwait	30.2
Lebanon: Muslim Lebanon: Christian	17.3 7.9
Oman	24.1
Palestinian Arabs	22.6
Saudi Arabia	25.8 (17.9% - 40.9% in another source)
United Arab Emirates	30
Yemen	36

Source: Hamamy *et al.* (2003)

Many studies (Khlat, 1988; Khoury, 1992; Al-Arrayed, 1995;(Othman & Saadat, 2009) have found a correlation between such marriages and the appearance of certain genetic and congenital abnormalities. For example, sickle cell disease is endemic in certain

regions of Saudi Arabia, such as the Eastern Province, with a prevalence of between 91 and 99 per 10,000 live births, as a result of the high proportion of consanguineous marriages.

In response to the findings of various studies, a number of agencies and organisations have called for more awareness programmes to be organised for families to prevent these marriages, to reduce their number, or at least to encourage people to seek help and screening when they need it. One initiative in Saudi Arabia that aimed to reduce the number of these anomalies and diseases in the community and to raise awareness was the mandatory national premarital screening programme. El-Hazmi (2006, p.1292) reports, "The Saudi Royal Cabinet issued an order stating that all Saudis be subjected to pre-marital examination and to present a certificate of clearance before the wedding". However, no one is obliged to abide by the results of this examination, regardless of what it may indicate.

Such programmes are considered evidence-based and provide justification for research and the implementation of an effective means of prevention. However, these studies and initiatives are insufficient and other programmes are needed to control and prevent genetic diseases in the Kingdom of Saudi Arabia.

In view of this, a cross-sectional study of 1307 married Saudis in the Eastern Province examined the rates of consanguineous marriage and its adverse health effects on children (Al-Abdulkareem & Ballal, 1998). It found that 52% of all marriages were consanguineous. Of these, first-cousin marriages were the most common, with an average of 39.3%, which was much higher than the figures in other countries such as Egypt, Japan and the UAE. Interestingly, however, the study found no relationship between consanguineous marriages and inherited diseases. The authors conclude with a

recommendation to conduct a nationwide study to determine accurately the relationship between genetic disease and consanguineous marriage.

A more recent cross-sectional study explored the role of consanguinity in genetic diseases (El Mouzan, Salloum, Herbish, Qurachi, & Omar, 2008). The authors conclude that their data suggests a significant role of parental consanguinity in coronary heart disease. However, consistently with the findings of the 1998 study, no relationship was established between consanguinity and other genetic diseases. The effect of consanguinity on genetic diseases is not uniform and this should be taken into consideration in genetic counselling.

In contrast with the above studies, Tadmouri et al. (2009), from the Centre for Arab Genomics, Dubai, UAE analysed data on genetic disorders in Arab populations extracted from the Catalogue of Transmission Genetics in Arabs database. This analysis indicates a relative abundance of recessive disorders in the region that is clearly associated with the practice of consanguinity. This raises questions as to the effects of consanguinity and leaves open the question of whether it should be promoted or discouraged, which is outside the scope of the present study.

1.8.4 Other forms of marriage

A number of other forms of marriage are practised in Saudi Arabia and other neighbouring countries. There have been attempts to bring these within a legal and religious framework in order to deal with trends in premarital and extramarital sexual behaviours in the region. One of these practices is *urfi* or common law marriage, which is usually secret or clandestine, neither registered nor witnessed by anyone. There is also a temporary form of marriage, *mutaa,* where the couple usually specifies the beginning and end of the marriage in advance; this practice is more common among the

Shia population. In Saudi Arabia, which is mainly Sunni, a third form of marriage which is increasingly common is *messyar*, also called 'visiting' or 'passing by', where the man and the women sign a secret contract but without any financial or legal responsibility on the man's part. During the marriage, the man will visit the woman in her home or that of her family. These three practices can all be seen to add to the burden of sexual and reproductive ill-health, such as the unknown rate of sexually transmitted infections (STIs), illegal abortion and unwanted pregnancy among the female population, given the lack of SRH education and services (El-Kak, 2013).

This chapter has provided an overview of Saudi women's position in society, first by exploring their achievements in education and employment, then discussing veiling, gender roles and types of marriage in Saudi Arabia, with their possible effects on women's SRH.

The next section describes the healthcare system in Saudi Arabia, with an overview of the services provided for women.

1.9 The healthcare system in Saudi Arabia

The healthcare system in Saudi Arabia is mostly owned and operated by the Ministry of Health (MOH). Expenditure on healthcare accounted for 6.2% of the 2009 government budget (MOH, 2009) and reached 12.6% in the 2014 budget. The goal of the MOH is to provide free nationwide medical care for Saudi citizens and for the international pilgrims who come to visit the holy city of Makkah every year. The people of Saudi Arabia are thus entitled to free healthcare and treatment across the country, while Saudi expatriates are also partially covered. The Saudi government expects part of the healthcare needs of expatriates who work in the private sector to be met by their employers. In addition to the annual budget allocation, the government can rely on

supplementary royal decrees to cover healthcare expenses related to special circumstances or projects (MOH, 2000).

Despite the availability of certain sources of data, the WHO (2006) warns that assessing the burden of disease in Saudi Arabia is difficult, in the absence of access to reliable data from the community and non-MOH sources. A recent UN report noted the importance of addressing HIV and AIDS:

> The prevention and treatment of HIV/AIDS has become a priority. The first case of HIV was diagnosed in Saudi Arabia in 1984. During the same year the national AIDS control programme was established. Nationals and stakeholders working in the programme agree that the true prevalence of HIV is probably much higher than the reported cases, given the under-reporting and the difficulty in reaching high-risk groups. The total number of HIV positive cases in 2008 was 13 926, of which 3538 (25.4%) were among Saudis and 10 388 (74.6%) were among non-Saudis. The full range of treatment is available in eight specialist centres and the Ministry of Health is planning to establish a further eight centres. (UNGASS country progress report 2010, Saudi Arabia Ministry of Health, 2010)

Rapid urbanization of the Saudi population, along with changes in diet, transport and youth culture, all mean that communities must change their thinking in order to establish healthier lifestyles. The government should address these issues by expanding the promotion of healthy environments in homes, schools and workplaces.

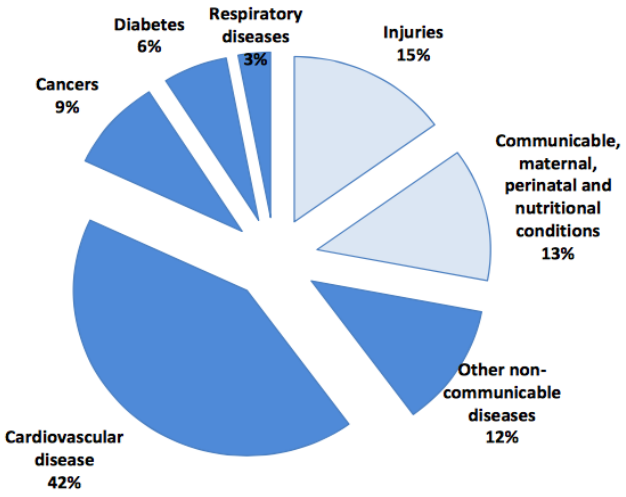

Figure 1.2: Proportion of mortality from all causes (all ages), 2008

1.10 Women's healthcare and the law

The Saudi government has committed itself to prioritising the provision of high quality healthcare to women and has devoted special attention to reproductive health and child care. It has implemented this plan by providing mother-and-child care centres and services throughout the Kingdom, offering care free of charge to all Saudi women. Some of the services offered are the following:

- Preventative health care and health education.
- Antenatal and postnatal care through combined programmes between healthcare centres and specialist hospitals across the Kingdom. These joint services provide obstetric care and other necessary diagnostic tests.
- In high-risk cases or in emergencies, the transfer of pregnant women to hospitals specialising in obstetrics or gynaecology.

Moreover, empowering women educationally, as mentioned previously, has been accompanied by progress in enabling them to benefit from available health services,

which have led to considerable improvements in general health, a decline in the incidence of certain diseases and the total eradication of others. As a result of these measures and initiatives, life expectancy had increased to 74.7 years for females by 2009 (UN, 2010).

Notwithstanding all the healthcare services that have been provided to women in Saudi Arabia, the law can have a great influence on women's health and healthcare at various levels. It is the law that determines the ultimate impact of public policy, including in the field of healthcare. First, the Ministry of Health applies a law which prevents a woman from being admitted to a government hospital unless accompanied by her male guardian. This is especially strictly enforced in rural areas, according to Mobaraki (2007), who also asserts that a woman can be barred from receiving medical treatment, even in an emergency, if the resident gynaecologist or obstetrician is male. Another adult woman does not have the right to sign the consent required prior to such treatment. While these regulations are not applicable to all healthcare facilities or hospitals in Saudi Arabia, they do apply to the MOH, which as noted above is the dominant healthcare provider in the Kingdom.

Arguably, Saudi Arabia is party to the Convention on the Elimination of All Forms of Discrimination against Women, which under Article 12 gives women the right to access all healthcare services in the country (UN, 2006). The article particularly refers to the presence of access to reproductive health for women. This is emphasised in paragraph two of the article, which states that women "should receive appropriate services in connection with pregnancy and the post-natal period granting free services where necessary, as well as adequate nutrition during lactation" (UN, 2006). However, Walker (2014) has argued that as far as the medical care of women is concerned, the

implementation of these laws is often ignored in reality, so that women still need to seek the permission of a male guardian.

The following sections examine some of the services provided to women in particular in Saudi Arabia and their limitations, and then considering factors contributing to their ill health completes this comprehensive review of Saudi women's health.

1.10.1 Family planning services

Another burden on Saudi women is the high fertility rate, but the availability of contraceptives as a solution remains an issue. In Saudi Arabia, there is no effective family planning programme supported by the government, perhaps because of the belief held by most Saudi communities that family planning is an anti-Islamic practice (Mobaraki, 2007; Al Sheeha, 2010).

If a woman needs the permission of her husband or male guardian before receiving contraceptives or information about them, she cannot exercise her right to free and informed choice. This restriction is inconsistent with the expectation that all health services will respect patient confidentiality. There are two relevant aspects of the use of contraceptives in Saudi Arabia: the refusal of men to allow their wives to use contraceptives and women's reluctance to seek their husbands' permission to do so, because they feel shy or do not want to discuss this personal matter with their husbands. Thus, if contraceptive use is to be increased and awareness of the associated issues improved, then the first requirement is for the community to change its attitude towards women, in particular by limiting the practice of requiring guardian approval, but this will be difficult, because male guardianship is deeply rooted in Saudi culture (Walker, 2014). Moreover, to the extent that Saudi society accepts the concept of birth spacing and the use of contraceptives, this does not mean having fewer children. Again, the

explanation lies in a culture that favours large families, consistent with a religious rejection of the concept of limiting family size.

Contraceptives are freely available over the counter to the Saudi population in general, but single women are not allowed access to them (Al Sheeha, 2010). The United Nations Population Fund (UNFPA) states that data are limited on the family planning needs of single women and of women in conventional or secret marriages in Arab countries, including Saudi Arabia, because this is considered unacceptable socially and legally. Women wanting to obtain family planning services face a range of legal and social constraints as well as moral judgments by healthcare providers. Women are also reluctant to admit or report their sexual behaviour and practices, including their contraceptive use. For these reasons, surveys of unmarried women are likely to underestimate both sexual activity and contraceptive use (UNFPA, 2012).

Basically, lack of information about family planning services, social taboos surrounding this issue, women's ignorance and fears of the side effects of contraceptives have all contributed to the poor delivery of family planning services in the country.

1.10.2 Pregnancy termination services

Under the non-codified principles of Islamic law, induced abortion is generally illegal in Saudi Arabia and permitted only under certain specific circumstances. For instance, when a woman has been pregnant for less than four months and a professional judgement is made that to continue the pregnancy would seriously harm her health, the pregnancy can be terminated in order to save the mother's life, under article 24 of the Rules of Implementation of the Regulations of the Practice of Medicine and Dentistry, Ministerial Resolution No. 218/17/L of 26 June 1989. However, such legally sanctioned abortions can be performed only in government hospitals and two other requirements

must be met: a recommendation must be signed by a panel of three specialists as well as the hospital director, while the patient and her husband or a male guardian must both sign a standard government-approved form of written consent (UN, 2011).

Recent discussions with health professionals has led to Islamic Council of Senior Scholars formulating a *fatwa* (legal opinion) on abortion law in the Kingdom, based on the two verses from the Holy Quran. Al-Alaiyan and AlFaleh (2012) report that Fatwa 240, issued on 16 January 2011, has the following provisions:

- It is permissible to abort a malformed foetus more than 120 days after conception or 19 weeks of gestation (when the soul enters the body) if the continuation of pregnancy is expected to result in the death of the mother.
- It is permissible to abort a malformed foetus up to 120 days after conception if its death is expected following delivery, or if the foetus has severe disabilities that cannot be cured.
- The foetus can be aborted at any stage of pregnancy if its death is medically confirmed in the womb of its mother.
- It is not permissible to abort a foetus under any circumstances without a medical report from a specialized and trustworthy committee composed of at least three physicians, after obtaining the written consent of the parents, or the mother alone if the continuation of pregnancy is affecting her health. Consent can be obtained from a proxy of the parents if they cannot give it for any reason. The signed consent must be kept in the medical records of the mother.

Finally, Hessini (2007) emphasises that abortion is generally prohibited after the ensoulment of the foetus, except when necessary to save the mother's life, while all schools of Islam forbid abortion in the case of a pregnancy arising from a sexual

relationship outside marriage. Whereas the legal, social, moral and religious status of abortion varies widely, it is generally seen as the most controversial aspect of reproductive health and the least accepted practice in a social context all over the world, regardless of the particular religion. In the case of Saudi Arabia, public policy, state law and Islamic law need to be integrated into a single structure that can help reduce the burden of unsafe abortion and the associated mortality.

1.11 Saudi women's ill-health

In an interview with Arab News, the director of the first national association for women's care in Jeddah and assistant professor at King Abdul Aziz University Faculty of Medicine, Dr Faqih, stated that all Saudi women lack health awareness (Al-Jassem, 2010). She also claimed that many Saudi women suffer from a range of conditions such as osteoporosis, cancer and STIs. Women's poor awareness of how to safeguard them has also contributed to their increasing risk of contracting such infections.

Al-Jassem (2010) further quotes Dr Faqih as stating that Saudi society's perspective on health needs to be urgently and fundamentally changed in order to prevent such adverse consequences. She urged the compulsory introduction of regular health check-ups across the country, including all cities and villages. She also emphasized that health education, particularly in schools, needs to be initiated and encouraged by the Ministry of Education.

On the other hand, Rasheed (Rasheed, 1998) notes that Saudi women are more obese than their European counterparts, according to a clinical study conducted in Al-Khobar, which found that as many as two thirds of females between the ages of 18 and 74 years had a BMI above 25 kg/m^2. Khashoggi et al. (1994) and Al-Shammari et al. (1994) report similar findings among women who attended primary healthcare centres in

Jeddah and Riyadh. Amongst the reasons noted for the prevalence of such obesity rates are sedentary lifestyles, the absence of routine physical exercise, limited exercise opportunities through health centres and their unpopularity, coupled with cultural factors. This problem is deep-rooted, in that girls are deprived of physical education even at school. Rasheed (1998) highlights such findings as a cause for serious concern among healthcare professionals in the country, given the major health problems associated with obesity, such as diabetes, coronary heart disease, hypertension and osteoarthritis.

Another concern related to Saudi women's health is smoking and the diseases that it can cause. Although tobacco and cigarettes are not manufactured in Saudi Arabia, people have been smoking there for more than 50 years. Tobacco imports in the form of manufactured cigarettes have increased dramatically over the years to the equivalent of an average annual spending on tobacco of 600 million Saudi riyals (approximately $150 million) (Jarallah et al., 1999). Smoking is a growing problem in Saudi Arabia among men and has recently been increasing adopted by women, especially educated ones. One study found the prevalence of smoking to be 24 to 47% among males and 12% among females (Saeed et al., 1996). Obtaining reliable data on the number of female smokers across the country has proved daunting, however, as Saudi females tend to hide their smoking habit from others or deny that they smoke, especially if they are interviewed in the presence of family members. This is because smoking by females is stigmatised, being considered outrageous and socially unacceptable, according to Jarallah et al. (1999).

A more recent study conducted in the College of Medicine, Riyadh, nevertheless found that 70% of females smoked the *shisha* (water pipe). Most subjects indicated that their main reason for starting smoking was pressure from friends, while 10% blamed the fact that their parents were smokers (Al-Turki & Al-Rowais, 2008). It should be mentioned that the shisha is the commonest form of smoking amongst Saudi women, because it is regarded as stylish and is believed to be less harmful than cigarette smoking. Moreover, shisha smoking is associated with socialization and relaxing with friends. The attractiveness of the shisha, the multi-coloured container and the variety of possible flavours also contribute to explaining why females take up this practice (Mohammed, Newman, & Tayeh, 2006).

A study in the neighbouring country of Kuwait, in a similar context to the Saudi community, explored the background to this habit. Its authors state that understanding the motivations to smoke shisha will be critical for the development of educational initiatives to discourage this behaviour. Because shisha smoking is a long-standing traditional behaviour, its reduction will present challenges at least as complicated as the challenges of decreasing cigarette smoking (Mohammed et al., 2006). Thus, shisha smoking presents another threat to the health of Saudi women and requires concerted efforts to increase their awareness of this harmful behaviour.

This brief review indicates that obesity; smoking, sedentary lifestyle and stress can all affect women's health negatively. In view of this, changes in the lifestyle and food consumption habits of the Saudi population can be seen to be reflected in its overall health status and in women's health in particular.

1.11.1 Breast and cervical cancer among Saudi women

At 21.8%, breast cancer is considered to be the most prevalent malignant condition amongst women in Saudi Arabia. More worrying is the early onset of breast cancer among young Saudi women, who suffer from a higher incidence of the disease than their European counterparts. Elkum et al. (2007) state that breast cancer before the age of 40 years accounts for 26.4% of all recorded cases in the country, based on a 2002 report of the Saudi National Cancer Registry, whereas in the USA, only 6.5% of cases are recorded in this age group. A recent report states that the highest overall percentages of 38.6% and 31.2% of female breast cancer cases were documented in women aged 30–44 and 45–59 years respectively (Alghamdi, Hussain, Alghamdi, & El-Sheemy, 2013). However, late presentation for breast cancer among Saudi women is noticeable and this may be considered one of the factors hindering cancer prevention and treatment in Saudi Arabia. The reasons for this may be a lack of awareness and knowledge of breast self-examination, as well as the presence and persistence of certain cultural factors and taboos. For instance, some women feel reluctant to seek help or advice for a personal and sensitive matter like this.

By contrast, the incidence of cervical cancer in Saudi Arabia appears to be relatively low. Alsbeih (2013) argues that the low prevalence of human papillomavirus (HPV) infection is due to environmental, genetic and cultural factors. However, the ICO HPV Information Centre (2013) reports cervical cancer as the 11th most frequent cancer among Saudi women and the 8th most frequent among those aged between 15 and 44 years old, while claiming that data is unavailable on the burden of HPV in the general population of Saudi Arabia. This lacuna is consistent with an earlier WHO report on HPV rates, which found no available data on the general or age-standardized incidence of cervical cancer among women in Saudi Arabia (WHO, 2010). The lack of data may

be explained by the fact that Saudi Arabia is a Muslim country where sexual relationships with multiple partners are uncommon and where talking about STIs, including HPV, is considered taboo. Many health specialists believe that providing information about HPV can cause problems in marriages, which highlights the need for clear educational messages regarding HPV and the lack of awareness by health professionals (Sait, 2011).

In summary, this section has described the structure and origin of the healthcare system in Saudi Arabia, providing an overview of the functions of the main healthcare provider for Saudi women, the MOH, outlining some of the services that it provides and noting the limitations in this care. In particular, it has given an account of a number of ways in which the moral, cultural, legal and religious characteristics of Saudi society appear to limit women's access to some areas of healthcare, especially those related to their sexual and reproductive health. It has also discussed how these national characteristics have restricted the availability of comprehensive data on Saudi women's health, including their SRH.

The next part presents an overview of women's SRH by presenting a review of the situation globally, in the MENA countries and in Saudi Arabia.

1.12 Overview of women's sexual and reproductive health

The World Health Organisation (2014) warns that when young people are unable to obtain the SRH education and services they need at school and in their communities, the result "is unwanted pregnancies, unsafe abortions and STIs including HIV infection". This chapter begins by placing women's SRH in the wider context, presenting a brief outline of the national and global situation. There is then more detailed information on women's SRH status in the MENA countries, followed by an account of the situation in

Saudi Arabia and a presentation of the cultural and religious perspective on sexual health. The chapter ends with a brief conclusion.

1.13 Definition of reproductive health

The World Health Organisation (2010) states that:

> Reproductive health addresses the reproductive processes, functions and system at all stages of life. Reproductive health, therefore, implies that people are able to have a responsible, satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so.
>
> … Implicit in this are the right of men and women to be informed of and to have access to safe, effective, affordable and acceptable methods of fertility regulation of their choice, and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant.

This definition refers to a number of positive aspects of reproductive health, including its emphasis on the forms of safety and acceptance in sexual relationships and on the freedom to reproduce, which means that women can decide when to have children without pressure from their husbands or the wider family. It also suggests the right of women to use contraception to space their pregnancies and to protect their own health. The other dimension of this definition has to do with accessibility and affordability, meaning that every woman has the right to access reproductive services when she needs them.

The reason for focusing on women's reproductive health and their health in general, according to the WHO (2009), is that women and girls have specific health requirements. These arise because there are conditions that only women go through and which might have some negative health impacts on them. These conditions, such as pregnancy and childbirth, are not in themselves diseases, but normal physiological and

social processes that all or most women undergo but which carry health risks and that require health care (WHO, 2009).

As a result, improving SRH is considered one of the most effective ways to promote equity as well as sustainable development for the achievement of the Millennium Development Goals (MDGs) as set out below:

> Reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents and other relevant UN consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing, and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health. They also include the right of all to make decisions concerning reproduction free of discrimination, coercion, and violence. Full attention should be given to promoting mutually respectful and equitable gender relations and particularly to meeting the educational and service needs of adolescents to enable them to deal in a positive and responsible way with their sexuality. (UNFPA, 1994)

However, in a conservative society, there are certain problems. The foremost is that sex education is considered to be a potential threat because it may undermine the key established mores or social rules, especially for women. In Saudi Arabia, the concept of teaching such topics as sexual behaviour and the reproductive system is alien. This leads to unawareness, which causes many problems in a modern society.

Shaw (2009) asserts that SRH education

> Imposes knowledge of normal physiology and development, healthy expressions of sexuality, an understanding of the consequences of sexual and reproductive behaviours, as well as communication skills that assist people in making informed and responsible decisions. Access to services that provide contraception, safe abortion, pregnancy care, and diagnosis and treatment of sexually transmitted infections is critical. (pp. 132-133)

1.14 Definition of sexual health

According to the current working definition, sexual health is

> … A state of physical, emotional, mental and social well being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled. (WHO, 2006a)

1.15 Key conceptual elements of sexual health

- Sexual health is about well-being, not merely the absence of disease.
- Sexual health involves respect, safety and freedom from discrimination and violence.
- Sexual health depends on the fulfilment of certain human rights.
- Sexual health is relevant throughout the individual's lifespan, not only to those in the reproductive years, but also to both the young and the elderly.
- Sexual health is expressed through diverse sexualities and forms of sexual expression.
- Sexual health is critically influenced by gender norms, roles, expectations and power dynamics (WHO, 2014).

Further to these definitions, many major international declarations and agreements have laid emphasis on the importance of women's SRH; these include:

- The International Conference on Population and Development, 1994.
- The Beijing Declaration and Platform for Action.
- Beijing +5, a special session of the General Assembly: "Women 2000, gender equality, development and peace for the twenty-first century", 2000.

- The Millennium Development Goals, 2000.

While these summits and others have addressed the wide significance of women's SRH, a detailed discussion of the aims and conclusions of each one would be beyond the scope of this study. Instead, the following sections consider women's SRH issues by presenting some examples, offering a brief sketch of studies and reviews that have touched on women's issues and problems from different perspectives.

1.16 Sexual and reproductive health globally

The WHO (2004) reports that reproductive and sexual health problems account for approximately 20% of the global burden of disease for women and approximately 14% for men. This shows the need for action to tackle such problems. Globally, HIV is considered the leading cause of death among women of reproductive age. Some of the risk factors among this group, which can lead to death and disability in low- and middle-income countries, are poor availability and accessibility of contraception and lack of safe sex. The results of poor services are unwanted pregnancies, unsafe abortions, complications during pregnancy and birth as well as sexually transmitted diseases and HIV (WHO, 2009).

According to UNFPA, over 1000 women die every day either in pregnancy or during childbirth, with 90% of these deaths occurring in Africa and Asia. The majority result from severe bleeding, infections, obstructed labour and unsafe abortions (UNFPA, 2010).

Despite all the development and resources that are available in most of the developing and developed countries, still more than 120 million women every year have an unmet need for contraception; 80 million women have unplanned pregnancies and 45 000 of them die as a result of unsafe abortions. More than half a million women die annually

from the complications of pregnancy or childbirth, in addition to postpartum problems. Glasier, et al. (2006) has stated that, globally, 340 million people have gonorrhoea, syphilis and chlamydia infections.

SRH, as stated above, is a major cause of concern for women. In the developing world, SRH services are either absent or of low quality and are sometimes underused by women, due either to lack of awareness and knowledge or to cultural sensitivity regarding this issue in some countries. Nevertheless, it is unacceptable today for a woman to die in childbirth or for anyone to become infected with HIV due to lack of information or education or resources. The current situation of SRH in the world—and more specifically developing countries—urgently needs more attention and investment in developing services and providing better accessibility (Khushk and Kadir, 2007).

Globally, a lack of knowledge about sexual and reproductive health issues is common, especially among the young. In a study in Malawi in 2007, 90% of young people were found to be aware of HIV, but only 51% of females knew that being faithful, abstinence and using condoms are the ways to avoid STIs. In Kenya, there was a belief that taking aspirin would prevent pregnancy and in Malawi, 40% of girls presumed that they would not get pregnant if they had sex while standing up. Worldwide, a frequently heard concern is that providing sexual education and information to young people will promote earlier sexual activity, yet the suppression of knowledge is not only morally wrong, but constitutes a failure to recognise reality that will have potentially devastating outcomes, in particular for women's SRH (Shaw, 2009).

1.17 Sexual and reproductive health in the Middle East and North Africa

This section turns to the under-researched MENA region[1] and its women, a group who have received relatively little attention. The region has recently experienced major political instability associated with uprisings against leaders and regime change, all of which may be seen as having significant implications for plans, views or agendas related to SRH in the region and especially to women's SRH. Figure 3.1 shows a map of the MENA region.

1.17.1 Overview

Islam, which is the principle religion of the majority of countries in the Middle East and North Africa, has influenced its people socially and traditionally and shaped their practices. According to Islamic rules, people should engage in sexual activity only within marriage; any sexual practice outside this legal framework is not allowed, is considered to be adultery and will be penalized, which plays a role in shaping some sexual behaviour (El-Kak, 2013).

[1] The MENA category is based on the definitions of the World Bank and WHO, and comprises Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, the United Arab Emirates, the West Bank and Gaza, and Yemen. Sudan and Turkey are sometimes also included.

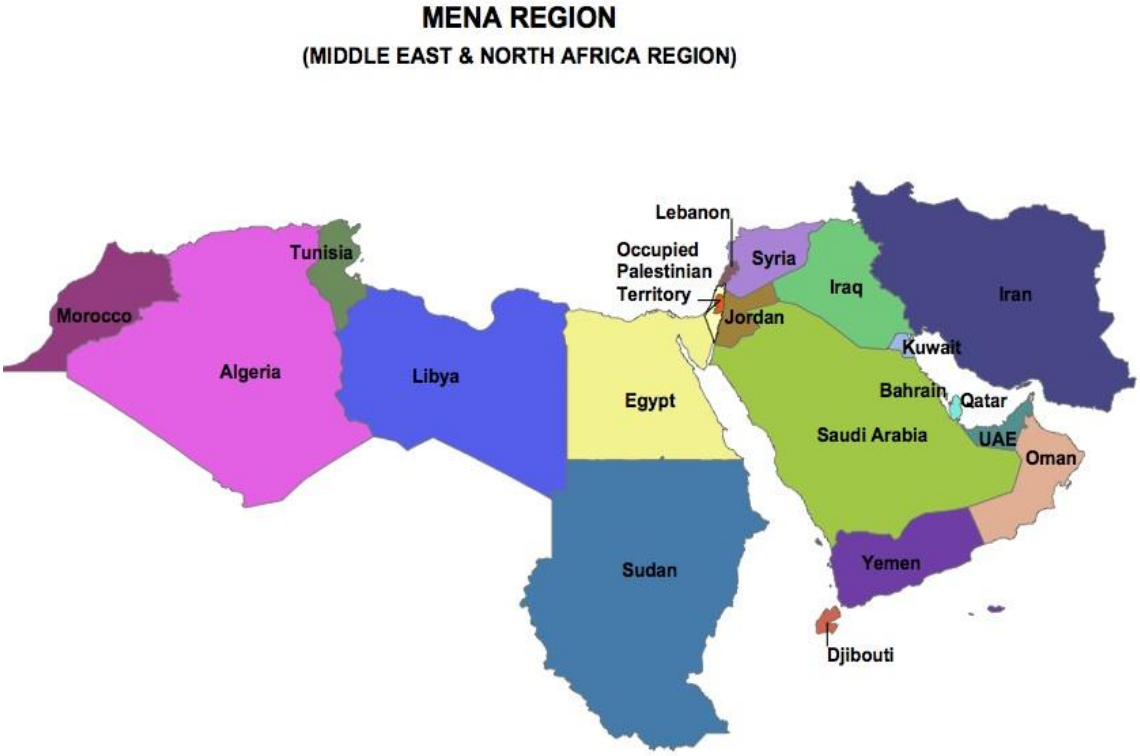

Figure 1.3: The MENA region

Dejong et al. (2005) note that in the MENA countries there has been a serious lack of discussion of issues related to reproductive health in general and sexual education in particular. This, according to Aoyama (2001), has given rise to certain grave problems such as disproportionately high rates of mortality, high fertility, especially teenage fertility, the unpopularity of the use of contraceptives, high rates of STIs, illegal abortion and a wide range of other psychological problems to do with mothers and their children.

Pieper (2009) has stated that the underlying reason for this is the ignorance of the governments of these countries towards the umbrella topic of reproductive health and the absence of care and attention in providing sufficient services of adequate quality to satisfy the needs in this area, with the exception of Tunisia and Iran, which will be mentioned later. Furthermore, honour killing, forced and early marriages, virginity

testing, gender violence and female genital mutilation (FGM) are still dominant issues in the region which, according to El-Kak (2013), increase the SRH burden.

Dejong, et al. (2005) suggests a number of possible reasons for the governmental ignorance referred to above and its negative consequences for SRH in the region. Among key factors contributing to rising rates of STIs, they list the high proportion of women and girls under 20 years old who are married, the low literacy levels of these women, the occurrence of armed conflicts in some countries and the use of violence against women. Looking at the wider picture, Pieper (2009) asserts that religion and culture have been frequently given as reasons for the lack of provision as well as the absence of open and transparent discussions of issues related to sexual and reproductive health; in response, education and the provision of information are paramount, so that women can learn about and be aware of their own bodies, sexuality and rights.

Pieper (2009) argues that it is the absence of knowledge that prevents these women from making informed and correct choices, with the result that they suffer abuse, STIs and unwanted pregnancies, adding that for unmarried women, pregnancy can be socially extremely damaging. A similar point is raised by Dejong et al. (2005) regarding the pre-marital sexual activity of some girls because of their ignorance of sexual matters, which could be prevented if knowledge, awareness and empowerment were imparted through education. In other words, education could go a long way in assisting the potential victims of such adverse circumstances to make the right choices about themselves and their lives.

Women and girls are usually viewed as the possessors of their family honour in most Muslim countries, where the potential loss of their virginity is seen as a threat to that honour. This places a heavy responsibility on females, resulting in psychological

pressure, which in turn can affect their mental health and sometimes leads to suicide. Indeed, "the main causes of suicide among unmarried adolescent girls in Egypt and Iran are the loss of virginity and unplanned pregnancies" (Douki et al, 2007, p.180).

Furthermore, because of the sociocultural value and religious importance given to virginity and its connection with family honour, premarital 'hymen intactness' has assumed sacred status in the MENA region. Thus, any young female who has lost her virginity is required to restore her hymen before the wedding night, because if she is discovered to be not virginal she is threatened with shame and even honour killing. "Women who did not bleed on their wedding nights were returned to their families to face the wrath of male relatives the next day because their virginity was suspect" (Saadawi, 2007). Accordingly, if premarital sexual activity happens it must take a form that does not involve vaginal penetration and is thus guaranteed to keep the hymen intact, such as 'outercourse', oral sex, and anal sex or mutual masturbation.

The World Bank (2001) refers to the high mortality rates affecting women in the MENA region, including countries like Djibouti, Yemen, Egypt and Morocco, reflecting the urgent need for constructive educational initiatives. An acceptable birth mortality rate is considered to be 7 deaths per 100,000 live births, which applies to countries such as Canada or Norway. In sharp contrast, Morocco recently had the highest maternal mortality rate, at 240 deaths per 100,000 live births (UN, 2008). Such alarming figures further point to the vulnerability of women in such countries due to the sheer absence of any educational or sexual and reproductive health programmes for women and their children. They also suggest a failure on the part of national governments to assign any priority or urgency to the initiation of such programmes.

The UN (2008) asserts that progressive sex education policies such as those in force in Tunisia and Iran lead in practice to significantly lower birth mortality rates, reduced numbers of early marriages and high rates of the use of contraceptives; they are thus positive health measures which should be adopted more widely. To this effect, Pieper (2009) notes that the examples of Tunisia and Iran are testimony that culture and religion do not have to be a hindrance to the provision of SRH education in the region. Therefore, they should be regarded as models for the provision of such services in other Islamic countries including Saudi Arabia.

The example of Iran is worth considering in some detail, as it can be seen as an exceptional case regarding family planning. From the perspective of socio-economic development, Iran was one of the first countries in the region to recognise family planning as a right for its people. The plan that the country adopted for this purpose was multifaceted: first, a space of three to four years between pregnancies was encouraged. Pregnancy was strictly discouraged for women under the age of 18 years or over the age of 35 years. Pieper (2009) reports that Iran has also introduced mandatory sex education courses for young couples prior to marriage, thus providing sex education as well as reproductive health services. These courses cover a wide range of progressive initiatives such as family planning which received a great deal of media attention as a model in the region. However, the support of religious authorities in the country for the introduction and implementation of such vital initiatives has been essential, which again suggests the facilitating and supportive role that religion can play in the provision of these initiatives.

Tunisia is another exception among the MENA countries for its SRH initiatives, policies and programmes targeting all young people, whether single or married, including the introduction of peer education programmes in universities. Tunisia is also only the

second MENA country—after Turkey—where abortion has been made legal without any restriction; no consent is required from the husband or a male relative, nor need the woman be married for an abortion to be performed (Speake, 2012).

1.17.2 Barriers to SRH education and services

According to Dejong (2007), young people in MENA countries lack access to SRH information and services, which should be provided to all, whether sexually active or not, as all young people need information and knowledge to be able to make informed choices related to their SRH, their relationships and childbearing.

In a report supported by the UNICEF regional office, entitled *Breaking the Silence and Saving Lives: Young People's Sexual and Reproductive Health in the Arab States and Iran*, Shepard and DeJong (2005) review SRH provision for young people in the MENA countries. This is considered an important breakthrough in coverage of this taboo topic in the region, revealing how much is missing and unknown about the needs of young people in Arab countries. The authors recommend that government should start addressing young people's SRH needs and closing the gaps in their information and knowledge as an important step toward breaking the silence and taboo surrounding SRH in the region.

SRH services in MENA countries are described as limited and failing to address young people's needs. If such services are available they are either understaffed or not conveniently located. In addition, there are social and cultural barriers to young women using these services, exacerbated by a lack of confidentiality, especially for unmarried women, who find that health service providers are often judgmental and sometimes refuse to provide services. Again, a very interesting and pioneering example is Iran, where the government instructed primary healthcare providers not to ask about the

marital status of people requesting contraceptives, an initiative which led to a 20% increase in demand for condoms (Shepard and DeJong, 2005).

According to the UN (2007), healthcare providers and stakeholders in Arab countries should not restrict access to SRH services and information; they should provide the services and information needed by young people in the region, especially women, without any legal, religious or social barriers. However, the UN report notes a significant reservation on the part of Muslim countries:

> All governments participating in the Cairo conference endorsed its programme of action. Muslim countries, including those in MENA, generally endorsed it with the reservation that they would interpret and adopt the recommendations in accordance with Islam. (UN, 2007, paragraphs 7.2 and 7.45)

1.17.3 The burden of sexual and reproductive ill-health

Despite the abovementioned efforts of some countries to provide improved SRH services, no reliable population-based research studies appear to have been conducted to assess SRH in the region. Furthermore, young people in the region lack adequate information and education on SRH matters at all levels: the family, schools and healthcare services. Without such information, young people in MENA countries, regardless of their marital status, are at risk from STIs, unplanned pregnancies and unsafe abortions. Recent reports indicate that only a few countries have included human reproduction in their school curricula; these are Iran, Morocco, Tunisia, Algeria and Bahrain (DeJong et al., 2007).

1.17.3.1 Sexually transmitted infections and HIV

Another barrier to improved SRH in the region is the refusal by authorities including national governments to accept that young people might be engaging in sexual activity, that sex workers are active in the region and that both men and women can have homosexual relationships; this failure to recognise the facts makes the prevention and

control of HIV/AIDS particularly difficult (Shepard and DeJong, 2005). Furthermore, DeJong (2007) reports that although people in MENA countries had heard of HIV/AIDS and other STDs or STIs, many were not aware of the various modes of transmission, while others were totally ignorant of the different types of STI. Another factor hindering progress in the region is the inadequate availability of data on STIs, which can have a severe effect on service delivery. Shepard and DeJong (2005) list a number of reasons for the scarcity of such data: the stigma associated with HIV and STIs, under-reporting of cases by health professionals and patients themselves, and the lack of research studies on this topic.

Figure 4.1 shows a later estimate of HIV infection rates among young people. Due to wide public policy denial in the region, such reports show relatively few people with HIV in the MENA region compared to other countries, although numbers are growing (Assaad & Roudi-Fahimi, 2007). The provision of accurate data appears to require more attention from governments and other organisations.

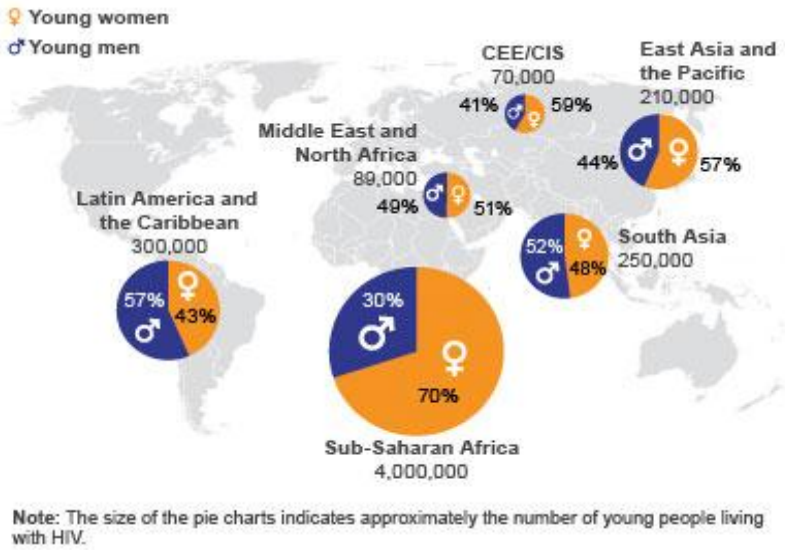

Figure 1.4: Estimated number and percentage of young people 15-24 years old living with HIV by region, 2008
Source: UNAIDS, AIDS Epidemic Update, 2009

1.17.3.2 Unwanted pregnancy and abortion

Countries that allow abortion only for the purpose of saving the mother's life are Egypt, Algeria, Lebanon, Libya, Oman, Syria, Saudi Arabia, Morocco, the UAE and Yemen, while in others like Sudan and Iraq, it is allowed in cases of rape and incest (sex between close relatives). Still, abortion is taboo and considered unacceptable in most MENA countries. The basis of allowing it, as mentioned in section 3.4.2, is to save the life of the mother and in Islamic teaching the limiting time is the ensoulment of the foetus, but there is no general agreement between different countries as to the stage of gestation at which this happens. As noted in section 3.5.1, Tunisia is the only MENA country where abortion is allowed in any trimester and on request, while in Iran it is allowed only in the first four months and with the consent of both parents.

1.17.3.3 Maternal mortality

One of the main factors hindering the improvement of SRH in the Arab countries is the paucity of reliable data on most health issues, because reporting is patchy and unreliable, while no population-based studies have been conducted to assess the situation of either maternal mortality or morbidity. However, it is known that the rate of maternal mortality among young women in MENA countries is high, especially in low-income countries such as Djibouti, Egypt, Morocco and Sudan. Anaemia, early marriage, frequent childbirth and poor nutrition are considered the main factors that have contributed to this problem.

To sum up, each country in the politically and economically diverse MENA region has its own context and situation; however, all MENA countries share religious, cultural and moral values, which can be used as an excuse to avoid providing or improving SRH services and programmes. Because of the sensitivity of the topic, governments are

reluctant to design and provide SRH services. It is strongly recommended that leaders in the region address this need and provide the necessary information to their people without restriction. Iran and Tunisia stand out for their initiatives, which address SRH even for the unmarried. This can be considered a first step in overcoming the taboo surrounding sexual health topics in the region so that further progress can be made.

To present a clearer picture of the situation of women's SRH in MENA countries, the following subsection offers a selective review of a few studies related to this topic, which have helped to broaden and deepen understanding of it.

1.18 Women's SRH needs and problems in MENA countries

In Iran, Khoei and Richters (2008**)** conducted a qualitative study of women's SRH from different perspectives, focusing on Muslim women living abroad and the effect of this factor on their perceptions and practices. The study examined the meaning of sexuality for Iranian women who lived in Australia. Khoei and Richters identify pregnancy, contraception, irregular periods, infectious disease, hot flushes, hysterectomy and osteoporosis as topics of major concern to these women. However, most participants reported that they found it difficult to discuss their sexual health with Australian health professionals.

Interestingly, women reported that their perception of sexual health related only to the topics of reproduction, pregnancy, contraception and gynaecology. Issues such as relationships, sexual pleasure and pain during sexual intercourse were not considered to be related to their sexual health. On the other hand, in Egypt, Sallam et al (2001) found that one third of the women in their sample of adolescents and adults stated that they had continuous pain during intercourse but did not seek medical help. The only trigger that would cause them to seek medical care was the presence of blood; thus, only 5%

sought medical treatment. This may be a result of the women's hesitation and reluctance to discuss these matters with anyone, even with health professionals; this is the norm in the majority of Middle Eastern countries.

In Iran, Rouhi et al (2011) obtained similar findings in a study conducted in public health centres providing antenatal, postnatal and child health services. Three quarters of Iranian women reported talking to their husbands about their sexual health problems, but 44-50% did not seek help from anyone else and did not talk about these problems. Interestingly, the majority of those women who had postpartum problems did not seek medical help; the only problem that prompted them do so was infected stitches, for which 58% sought medical assistance.

As to Egyptian women's awareness of SRH issues, Sallam et al. (2001) found that 41.3% of Egyptian university-educated women were aware of STIs and sought treatment, whereas 38% were aware of STIs but did not visit a doctor. They also found that 12.8% of illiterate women had had cervical smears, compared to 34% of university-educated women. Almost a quarter of illiterate women were entirely unaware of cervical smears, compared to 30.6% of university-educated women. Only 5.3% of illiterate women conduct routine breast self-examination, compared to 49.6% of educated women. Approximately equal proportions of illiterate and university-educated women were unaware of breast self-examination: 27.3% compared to 28%.

Similar findings were obtained by Abdul-Aziz (2009) in study conducted in Qatar. The findings suggest that sexual education is completely absent in certain Middle Eastern communities and that there is a taboo against discussing this topic with young women, who will have their first sexual experience when they marry. This indicates that a large number of these women must live with all the fear and anxiety that they might

experience before marriage, with no proper information or preparation. Abdul-Aziz (2009) found that 46.3% of Egyptian women and 52.6% of Jordanian women living in Qatar would like to attend courses on sexual health. Only 9.5% of Egyptian and 6% of Jordanian women believed that religion prevents sex education. Furthermore, 78.9% of Egyptian and 62.6% of Jordanian women supported the idea of providing sex education. Interestingly, almost three quarters of Egyptian women and more than half of Jordanian women were knowledgeable about and familiar with masturbation, despite it being against Islamic teaching. Abdul-Aziz (2009) also found that 23.3% of Jordanian women were willing to discuss their sexual problems with their physicians, compared to only 9.5% of Egyptian women. In contrast, Egyptian women were more likely than Jordanian women to believe that they had sexual problems, at 17.2% and 12.3% respectively. Many of the women in this study said that they would like to ask an expert about sexual health matters, with 28.4% of Egyptian women and 33.3% of Jordanian women expressing such a desire.

In Egypt itself, Sallam et al. (2001) report that over three quarters of females in both adolescent and adult groups agreed with and were aware of the benefits of delivering in hospital, yet only 58.4% of adolescents and 61.3% of adult women had done so for their last pregnancy. The participants identified lack of money and tradition as barriers to hospital delivery. In addition, only 11.3% of adolescents and 12.9% of adult women had been to the postpartum clinic after delivery; this demonstrates the low rates of antenatal and postnatal care utilization, or ignorance of the existence of these services.

Abou-Shabana et al. (2003), who also conducted a study in Egypt, report that their findings demonstrate the effect of education on women's decision-making and awareness. Three quarters of Egyptian women aged between 30 and 35 had an accurate concept of their right to discuss sexual health, in comparison to 62% of those aged

between 20 and 25. There was a significant relationship between women's residence, education, and awareness of the right to discuss their sexual health, 69.1% of urban dwellers being aware of their right, compared to 57.8% of rural dwellers ($p<0.05$). Further, 55.4% of illiterate women were aware of that right, compared to 85.2% of university-educated women ($p<0.01$). Another study in Egypt demonstrates the effect of certain social barriers on women's sexual and reproductive health. Sallam et al. (2001) found that all of their female participants were aware of family planning methods and 95% agreed with the idea of using family planning, although only 38.6% of adolescents and 63.1% of adult women were in fact using any family planning methods. The factors preventing them from using such methods included being an adolescent wife, being illiterate, and having no radio or TV.

In the case of Iranian women, Shirpak et al. (2008) conducted a qualitative study using focus group discussion to investigate their requirements in terms of information relating to their sexual health, as well as their concerns and problems. The three main themes identified in the data were women's concerns, the effects of increasing women's knowledge, and accessing information.

Most participants believed that they had low sexual desire or interest compared to their husbands; this was a matter of great concern to them, which they attributed to a lack of knowledge and information. Other areas of concern that they reported include information on sexual responses, expressions of intimacy and how to keep their sexual relationships from becoming uninteresting and boring. One said:

Some men don't know how to do that. It is why some women hate sex...

Women provided contradictory answers when asked about the effects of increased knowledge. Some thought that it would change nothing, because of the cultural norms

and gender roles in Iranian society. Others took a more positive view and believed that it would have a significant effect on women's lives, by empowering them and helping them to take decisions. Some suggested that learning about sexuality "would bring peace to their homes".

> *Our society is patriarchal. Men think they are right and are reluctant to give consultation.*

Other women pointed out the problem of cultural factors and their effect on both women and men, as well as on the social norms and social beliefs that sometimes prevent or interfere with any attempt to improve women's sexual health.

> *We don't get used to caressing, kissing and hugging each other in front of others. Our modesty stops us from doing that. We are not even used to using romantic words in front of other people. So how can one do all of this when she lives with her father in law's family with limited privacy?*

On the subject of accessing information, all women reported that there was a scarcity of information regarding this topic from their childhood to their adult life and that this contributed to the major problem, which was a lack of satisfaction in sexual relationships.

In addition, Abou-Shabana et al. (2003) highlight a number of important points that can be generalised to other MENA countries. First, the majority of women in their study reported using the terms 'marital life' or 'marital relations' to talk about sexual interaction, because they thought it more acceptable in light of their modesty and the cultural taboos surrounding these topics, as well as the lack of vocabulary in Farsi to describe and express different concept of sexuality. Further, the majority of the women agreed that sexual relations were a private matter and should not be discussed in public, even between women.

The findings of the majority of the studies reported in this subsection demonstrate the need for information and knowledge, as well as the significant effects of culture, tradition and taboo, which prevent women from gaining knowledge or seeking help. We can summarise the situation of women's SRH in MENA countries as progressing but not improving, the main areas of concern being those listed by Ercevik Amado (2004):

- "Sexuality is maintained as a taboo by certain political and social forces.
- Several laws lead to women's human rights violations in the domain of sexual and reproductive health and rights.
- Several laws legitimize customary practices that constitute women's human rights violations.
- Customary practices such as honour crimes, FGM or temporary marriage are still widespread in various countries of the region.
- Existing laws protecting women's rights are not implemented sufficiently.
- Women have limited ownership of their bodies and sexuality.
- Women's bodies and sexuality are conceptualized to belong to men, family and society as reflected in laws, customary and social practices."

To summarise this subsection, the evidence of a number of studies has shown that there remain major gaps in knowledge in all areas of SRH among young women in the MENA countries. Further, the accessibility of existing research in the region varies; in some countries data exists but is not accessible for political reasons. Undoubtedly more research is needed, although it should be recognised that some promising initiatives and programmes have started to appear in the region. Tunisia and Iran stand out as pioneering examples in this respect.

The next section discusses the SRH situation of Saudi women, based on available literature in the context of this study.

1.19 The provision of SRH services in Saudi Arabia

1.19.1 Overview

The general areas of concern regarding reproductive health in Saudi Arabia are premarital, antenatal, obstetric, new-born and postpartum health care. Contraception is accessible upon request, but to married couples only. Specific regulations regarding premarital examination are now made mandatory for all couples to reduce the burden of congenital disease.

Saudi Arabia has recently adopted the new WHO antenatal care module, which aims to ensure the best possible outcome for every pregnant mother and new-born baby. Necessary adjustments have been made for certain interventions to meet the needs of the target population, taking into consideration the scientific basis for each practice as well as the available resources. This module ensures four antenatal visits and focuses on evidence-based interventions that address the health issues most relevant to mothers and newborn infants. A classification form for easy assessment of women's eligibility for basic health care is included in the module, which also provides a checklist of activities performed throughout the four-visit schedule. Over 96% of deliveries that took place in 2007 were attended by trained health personnel in health facilities (WHO, 2010).

Walker (2014) states that the majority of women in Saudi Arabia are now receiving good prenatal and postnatal physical care and that maternal mortality rates are quite low, due to the good maternal care and attended birth. However, it should also be stated that the data and statistics for the population who live in certain remote or rural areas is not always accessible and accurate.

The problems affecting maternal health in Saudi Arabia are multifactorial, as El-Gilany and El-Wehady (2009) have commented in their situational analysis of antenatal care in the eastern province of Al-Hassa. They found that consanguineous marriage, early marriages and unspaced pregnancies, which are the norm in Saudi Arabia, resulted in frequent medical complications for mothers, in addition to pregnancy or delivery at early or late ages. Thus, the main problem is not the availability of services or their accessibility, but is more related to the fertility patterns in the country and cultural practices. In other words, the problem comes down to individual choice and practice, which stems from the individual's cultural practices. Moreover, these results provide insights into the cumulative effect of early marriage, birth interval and cultural beliefs on women's reproductive health. These negative outcomes are similar to those reported in studies of the effects of consanguineous marriages.

Mobarak and Sodergeldt (2010) identify some cultural factors, which affect women's reproductive health in Saudi Arabia. They note that it is common for women to carry on giving birth late into their lives, which increases the possibility of having children with congenital and genetic abnormalities. One cause of this is the pressure from the family and society to have sons, because a girl cannot transmit the family name, as her children will take the name of their father, not hers. Saadawi (2007) makes a similar point. Girls are also considered potential risks to family honour, because any misbehaviour by a female will affect the family's name (Douki et al., 2007). Such prejudice is against Islamic teaching, which encourages the giving of more care to girls. The prophet has said: "Whosoever has a daughter and does not bury her alive, does not insult her, and does not favour his son over her, God will enter him into paradise" (Ibn Hanbal, 1957).Another explanation for the practice of continuing and late pregnancy is related to a woman's fear that her husband might marry another woman if she were to stop

producing children. Thus, the older woman wants to prove to her husband and his family that she is still young and fertile. Douki (2007) supports this point by arguing that a woman's worth in most Muslim countries is assessed by her ability to give birth to children. This practice may have significant effects on women not only physically, but also mentally and psychologically.

Another burden on Saudi women's health is the high fertility rate, as noted in the studies of both El-Gilany and El-Wehady (2009) and Mobarak and Sodergeldt (2010). Although recent statistics from the MOH indicate that the total fertility rate is declining in Saudi Arabia, this factor remains responsible for the high prevalence of low bone density and osteoporosis among postmenopausal Saudi females (Sadat, 2005). This has had a great effect on the quality of life for women, especially during the period of highest fertility rates.

The cultural obstacles facing women in Saudi Arabia can also make it difficult for some to seek health services, either during pregnancy or later. For example, many women prefer to be seen by female physicians, which is sometimes difficult because of the shortage of female healthcare providers. Thus, the Ministry of Health and most hospitals are trying to increase the numbers of female healthcare providers in services related to women, to ease the process of communication and to deliver a better quality of care. Another example of a cultural barrier is that in many areas women are not the decision-makers, which means that they cannot seek medical care or advice unless their husbands agree to this access and give consent. Douki (2007) refers to women's duty of obedience in the majority of Muslim societies, which despite recent development and progress, is still a prominent force and is a widely accepted practice in Saudi communities.

Another study, by Alzahrani (2011), looked at Saudi women's perceptions of sexual health and the sexual health services provided to them. It found that they faced difficulties in talking about sexual issues and especially matters related to sexual intercourse. In what she identifies as a very important finding which could help in designing and providing sexual healthcare services in Saudi Arabia, Alzahrani reports that women delayed seeking sexual healthcare due to the impact of Saudi social norms around sexuality. She also lists the following problems with service provision: women had to wait a long time for an appointment; when the services were provided the quality was low; and many women reported that because women in Saudi Arabia are not allow to drive, they depended on their husbands for transport, representing a major obstacle to accessing sexual health care or advice. Alzahrani (2011) concludes that Saudi sexual healthcare services are very limited and that implementing the concept of holistic sexual health in Saudi Arabia would be difficult, due to social and religious norms. Multifaceted interventions are therefore necessary to improve the quality of such services.

1.19.2 Premarital care

Premarital care refers to counselling for couples before marriage and involves a consultation during which the history of each of the partners is taken and they undergo medical examination and laboratory tests. These procedures are performed in order to screen for any inherited diseases and abnormalities that might occur (Al-Kahtani, 2000). However, the prospective husband and wife are not obliged to abide by the laboratory results if they do not wish to do so. This in effect means that notwithstanding all of the development plans and initiatives that the government has put in place, the same government continues to prioritise religion, culture and tradition in giving individuals

the option to go ahead with a marriage even when all the medical indications are against it.

The premarital medical examination takes into consideration the Islamic code of Sharia and ethical principles that consider marriage a religious and social bond in the family, with specific rights on one hand and specific obligations on the other. It is in line with the direction suggested by the Prophet Mohammed (PBUH) to a man who proposes to a woman to *"look her in the eye",* which indicates the need to know about any mishap or malformation before the wedding. That is to say that the premarital examination is a means to uncover any ill health or malformation. Therefore, the examination is a health requirement, as the prophet (PBUH) said: "*Do not join the healthy and the sick*".

For these reasons and others, the Saudi authorities consider that the premarital examination is an effective means of minimising the birth of genetically sick children. Therefore, Hazmi (2006, p. 1292) states, "the Saudi Royal Cabinet has appropriately issued an order to make premarital examination mandatory in the Kingdom". The purpose of this examination is to reduce the number of children who may be affected by certain disorders or diseases and to assist decisions relating to marriage. It is important to recall that no one has the authority to stop a couple from being married as a result of such an examination; the information is given to the couple but they are ultimately the ones who make the decision. As mentioned earlier, this process does not do what it is designed to do, if couples who are advised not to marry decide to carry on and do so. Al-Kahtani (2000) recommends the involvement of Islamic leaders in health education programmes, as in the case of the support of religious authorities in Iran, because of their great influence on people and to ease the community's acceptance and awareness of these programmes.

1.19.3 Family planning

All health facilities in the Kingdom of Saudi Arabia provide reproductive health services. Women receive advice and information on family planning methods, usually during postnatal visits. In the period between 1991 and 2002, contraceptives were used by an average of 32% of married women. In 1996, a team from the Ministry of Health medical school at King Saud University and the Central Department of Statistics conducted a study to assess the level of knowledge of contraception among a random sample of 10,510 Saudi women. The results showed that 81% of Saudi women had knowledge of at least one method of contraception and 43.2% had used at least one method. Contraceptives are usually available from both public and private sector pharmacies. Recently, Al-Sheeha (2010) conducted a study, which found that knowledge of contraceptives was low among Saudi women. Half of the sample had a low level of knowledge, 22.9% had good knowledge, while only 9% had excellent knowledge. As to the sources from which women obtained their information, these were: family members 32.9%, television 26.3%, the written media 21.5%, health professionals 17.3% and the internet 2%.

1.19.4 The profile of SRH awareness in Saudi Arabia

In terms of information and education needs, Madani et al. (2004) ran a descriptive case study of all the confirmed HIV infections diagnosed in Saudi Arabia from 1984 to 2001, identifying 6,046 diagnosed cases of HIV infection, of which a fifth were among Saudi citizens and four fifths among expatriates. These results warrant attention regarding the need for more health education programmes, especially in the area of sexual and reproductive health, which have to be subject to Islamic rules to be successful and accepted by the community.

This need for proper education and information about sexual health issues is further highlighted by Fageeh (2008), who conducted a cross-sectional study in Jeddah for two weeks in 2008, in which 536 individuals aged between 18 and 25 years participated. The results demonstrate that awareness of STI protection was around 72% of the total sample but with higher percentage among males than females. Only 60% knew that condoms were not fully protective against all STIs, with approximately similar figures for both genders (64% and 58%). Only about half of participants (56%) said that they would like to know if they had one of these STIs, while most (92%) believed that health education on STIs should be started in schools. These results all point in the direction of heightened awareness in Saudi society of the need for education in the areas of sexuality and reproduction. What is more, steps have been taken in the right direction in order to take appropriate action in order to satisfy these needs.

This is not to say that the situation is ideal and that enough has been done to address the deep-rooted issues and deficiencies in such vital matters. To this effect, Dandash (2007) points to the insufficient knowledge of Saudi female teachers on the topic of breast cancer in a cross sectional survey of 376 teachers in girls' schools in Buradah city. He used a self-administered questionnaire to investigate participants' knowledge and their attitudes to screening behaviour. The study reflects on the level of Saudi women's knowledge of the most frequent cancer among women, which is also an area of women's sexual and reproductive health. The author identifies the need for health education programmes to help in improving the knowledge and awareness of Saudi women, a finding consistent with earlier studies.

There is a large body of evidence about the benefits and effectiveness of sexual health education in schools. Abolfotouh (1995) examined the impact of one lecture on AIDS on the knowledge, attitudes and beliefs of male school-age adolescents in the Asir

region of south-western Saudi Arabia. A self-administered questionnaire was distributed to two randomly selected groups, one of which had heard a lecture on AIDS (n=335) and a control group (n=503) who had not received any information. The researcher found that adolescents' knowledge of HIV in that region was poor and recommended more education programmes.

When one reflects on the results of these studies, one can see that they all call for more health education programmes and more information to help reduce the burden of poor knowledge and awareness within Saudi communities, especially in the areas of sexual and reproductive health. It should be acknowledged that the evidence for the promotion of public awareness of such vital and fundamental issues is substantial. However, this culture of educational promotion needs to be further reinforced to have a consistent status.

1.19.5 Accessing sexual and reproductive health services

Another study into the reproductive health of young Arabs, conducted by Shirpak et al. (2008), reports three main findings. First, young people's reproductive health needs are not being fully met in Arab countries, due to a social reluctance to address these issues and to cultural and religious sensitivities. Secondly, health services generally fail to recognise the special needs of this age group, particularly those who are unmarried. Finally, little is known about what young people themselves want in terms of sexual and reproductive health services. Regardless of where or in what context these studies have been conducted, they all reflect the situation prevailing in Saudi Arabia.

There is thus a dearth of information on sexual and reproductive health among women in the Middle East in general, and in Saudi Arabia in particular. Therefore, while formulating policies on reproductive preferences and imparting knowledge and

education to Saudi women about these issues, certain developmental stages must be considered, to align the policies with the particular requirements of demographic, cultural, religious and social characteristics.

In a country like Saudi Arabia, local interpretation of Islamic law and social norms can have a negative impact on all aspects of women's health, especially their SRH, because of the taboo surrounding these topics. This is the case not only in Saudi Arabia but also in most Middle Eastern countries. The factors causing such countries to lag behind the international movement towards improved SRH can be summarized in four main areas: religion, lack of services, lack of proper skills among healthcare providers, and the taboo surrounding this topic (Shirpak et al., 2008).

Saudi Arabia does not have a formal structure or sufficient educational programmes relating to sexual and reproductive health. This can largely be explained by the priority and value accorded to modesty in Saudi society. The government and healthcare providers avoid referring to these topics or discussing them in public because they believe that sexual matters are private between husband and wife. Cultural, religious and social norms further constrain any movement to provide or improve SRH services.

Because of this lack of educational programmes and services, Ahmadi (2003) states that most young Arabs look for information on the internet or in pornographic magazines, or seek advice from their peers. This typically results in misunderstanding, myth, confusion and incorrect information, which may even lead them to more harmful practices. Again, the underlying reason for these adverse consequences is the absence of structural direction on the part of the governments of these countries.

Shirpak (2008) draws the following stereotype of most Middle Eastern countries, including Saudi Arabia, to explain the limited access to SRH information and education:

before marriage, all women have to be untouched, virgin and unconcerned about sex or even unaware of the word ‘sex’. This is applied more strictly to women than men and is a reflection on gender roles in those communities, where men are seen as superior to women.

In addition, women are brought up under the close supervision of family members and are taught to follow the rules of chastity in order to be good girls now and good wives in the future, concealing their sexual needs and desires from others and even from themselves. However, when they get married they are expected to be knowledgeable and seductive to meet the needs of their husbands. Thus, women and their rights are seen to be ignored to a large extent in this part of the world, where the deprivation of knowledge is part of the deprivation of basic human rights and has unreasonable expectations at its centre.

In other words, the paradox is that women are expected not to have any formal SRH education, yet are expected to know about sexuality and sexual health after marriage. This illustrates the great conflict of certain social norms and traditions with reality. This conflict should be the focus of further research with the aim of initiating SRH programmes and spreading the concept of SRH within the Saudi community.

1.20 Sexual and reproductive health: a cultural and religious perspective

In order to understand the importance of the cultural and religious dimensions of sexual and reproductive health, it is necessary to begin with some remarks concerning definition and categorisation. SRH can be considered to comprise several components, namely the absence of sexually transmitted disease, the absence of reproductive disorders and control of fertility, including by the use of contraception. As to sexuality, its meaning is shaped in a given community through the interactions among cultural,

religious, ethical, historical and legal elements. Bahar (2005) maintains that culture is an integration of values, beliefs and the patterns of behaviour of a group of people, which give a community their potency. Every community builds on its standards of behaviour and beliefs, making it unique and diverse. Emotional expression, language, values, rules and even sense of dress trace their origin to cultural experiences.

According to Khoei (2008), sexuality, culture and gender are three dimensions, which are historically connected with religion. It follows that each religion or culture has its own interpretation and view of sexual health. Recognition of these differences is vital when planning to introduce health services or promoting any new healthy behaviour such as good sexual health.

In Islam, the only forms of sexual relationships permitted are those between husband and wife; premarital, extramarital and same-sex relations are forbidden (Al-Afendi and Baloch, 1980). This comes from the words of Allah transmitted in the Quran:

> *And among his signs is this: he creates for you mates out of your own kind, so that you might incline towards them and he engenders mutual love and compassion between you.* (Holy Quran, Chapter 22, verse 5)

In other words, marriage is viewed as the only legal sexual channel and guard against immorality in such communities. This shows the great premium placed on religion, even in matters regarding health and sexuality.

However, the Moslem world is composed of a number of countries with distinct cultural, social and economic backgrounds. Scholars differ in their interpretation of Islamic rules and instruction, but they all share one religion. Bahar (2005) explains Islam as a way of life in which individuals devote themselves entirely to Allah and adhere to the basic Islamic rules in everything such as personal relationships, business and personal behaviour, dress and hygiene. Arguments about sexuality in Islam usually

fail to consider the differences of interpretation and practices among Muslims. Thus, the issues of religion and its effect on women's sexuality require careful and deep analysis, which is outside the scope of the present study.

1.21 Conclusion

Good sexual and reproductive health is a fundamental right and an integral component of the overall health status of every human being (Shaw, 2006). The development of a satisfying and healthy sexual identity and the need for good sexual and reproductive health are things that young women become more mindful of during adolescence and when they learn about sexuality in a number of ways and from a diversity of sources. Their sexual and reproductive life, formed by their knowledge, attitudes and behaviour, can lead to fulfilling and pleasing experiences or to negative outcomes such as STIs or unwanted pregnancy.

The next chapter presents a systematic review of the relatively scarce empirical literature directly relevant to the present study.

Chapter 2

Systematic review of literature

2.1 Introduction

This chapter reports a systematic review of published literature carried out for this thesis. The review is limited to publications that are relevant to the thesis and address its main aim and objectives, in terms of population, study context and study design.

Although there have been several systematic reviews focusing on aspects of women's SRH, none has specifically and exclusively examined women's knowledge and awareness of SRH in the Middle East and North Africa. This review compares findings among MENA countries, so that differences between settings and contexts can be demonstrated and a more nuanced insight into women's SRH in MENA countries can be obtained.

This review considers a subset of research focusing on university students during their reproductive years, examining quantitative studies, which used survey questionnaires to gather data. The reason for focusing on university students is that the thesis of which this review forms part reports a study of SRH knowledge among university students in Saudi Arabia using a survey questionnaire. The review has therefore been restricted to studies in which the participants were female university students and where survey questionnaires were used.

Thus, the purpose of this review is to provide evidence of the level of knowledge and awareness among female university students in the MENA countries of SRH matters, in addition to identifying their sources of information.

2.2 Scope of the review

Women's SRH matters or services include a wide range of areas, such as family planning, HIV, maternal and child health, gender-based violence, sexually transmitted infections, fertility, gynaecological problems, reproductive cancer, breast cancer, menopause, pregnancy and delivery. This review focuses on some, but not all, of these aspects, particularly those, which are likely to concern young female students, in accordance with the scope of the present study.

2.3 Objectives

The objectives of this review are to identify and where possible analyse the available evidence on the following:

- What studies have been conducted to identify women's SRH knowledge and awareness in MENA countries, in particular in university settings?
- Do these studies identify the individual and social factors that have an effect on student's knowledge in regard to their SRH?
- What are the sources of information from which these students sought to gain knowledge?

2.4 Methods

A systematic review of published literature on female university students' SRH knowledge and awareness in MENA countries was conducted through a standard systematic search using electronic databases from inception to February 2013, as well as a search of relevant websites, to identify related studies, following a protocol which was originated to guide this review (Appendix 5).

2.5 Eligibility criteria

2.5.1 Inclusion criteria

***Participants*:** Female university students of reproductive age, i.e. 18 to 45 years attending private or state universities in MENA countries. If studies included both males and females, only the female results were included here.

***Outcomes*:** Students' SRH knowledge or awareness, attitudes, behaviour and sources of information in MENA countries only.

Study design: Only primary research and only quantitative studies. The initial plan was to include both quantitative and qualitative research in this review, but no qualitative papers were found on university students. Thus, this review is limited to quantitative studies, especially those using the questionnaire survey method. No language restrictions were applied.

2.5.2 Exclusion criteria

***Participants*:** School-aged students, male participants.

***Outcomes*:** Reports of sexual and reproductive health knowledge or educational programmes among schools. Studies focusing on pregnancy and pregnancy outcomes or intervention programmes.

***Study design*:** Studies were excluded if they were in the form of editorials, book reviews, bibliographies, resource or policy documents, letters, expert opinions, systematic reviews, or narrative reviews or reports, or were not relevant to the research objectives.

Studies were also excluded if they related to HIV treatment, fertility problems, menopause, gynaecological diseases, or maternal and child health. These exclusions

were made because these topics have been reviewed on many occasions (Brickley et al., 2011; Samkange et al., 2011; Williamson et al., 2009). In addition, the major focus of the study is basic SRH knowledge among female university students. Finally, there were limited resources and restricted time available for this review, as it is part of PhD study.

2.6 Information sources

A search was conducted using combined search terms in the following databases: Medline (via Ovid), EMBASE, Web of Knowledge, PsycINFO and CINAHL for papers published between January 2000 and February 2013, in order to obtain up-to-date research. Subsequently, these electronic searches were enhanced by screening the reference lists of the selected publications for additional papers of interest, which met the inclusion criteria and an update auto alert was applied to all databases for any updates of recent papers published subsequently. Due to the time limits and resource constraints of this review, hand searches of printed journals were not carried out.

Internet resources such as Google and Google Scholar were also searched with the following search terms: ‘women, woman’, ‘university -students’, ‘Arab countries’, ‘Middle East’, ‘female, females’ ‘health -education’, ‘health -promotion’, ‘sexual -health’, ‘reproductive -health’, ‘knowledge’, ‘sex -education’, ‘awareness’, ‘information’; MeSH terms and text words were used.

2.7 Quality and methodological assessment of the studies

The researcher assessed the quality of each paper and ensured that it met the inclusion criteria by using the following assessment criteria, based on EPPI-Centre guidelines:

- Does the study provide justification for its focus?
- Does the study explicitly and clearly state its aims?

- Does the study adequately describe the specific circumstances under which the research was developed, carried out and reported?
- Does the research provide adequate details of the sample used in the study, including complete details of sampling and recruitment?
- Is any attempt made to assess the validity and reliability of the data analysis?
- Is there clear integration of the data, its interpretation and the conclusion?

The characteristics and results of all studies included were tabulated and analysis was qualitative. No meta-analysis was appropriate.

On the other hand, the researcher also assessed the studies reviewed using the Critical Appraisal of a Survey tool from the Centre for Evidence Based Management (CEBMa) which was adapted from Crombie, *The Pocket Guide to Critical Appraisal*; the critical appraisal approach used by the Oxford Centre for Evidence Medicine, checklists of the Dutch Cochrane Centre, BMJ editor's checklists and the checklists of the EPPI Centre. The results are summarised in Table 2.1.

The CEBMa tool uses the following questions:

1. *Did the study address a clearly focused question / issue?*
2. *Is the research method (study design) appropriate for answering the research question?*
3. *Is the method of selection of the subjects (employees, teams, divisions, organizations) clearly described?*
4. *Could the way the sample was obtained introduce (selection) bias?*
5. *Was the sample of subject's representative with regard to the population to which the findings will be referred?*

6. *Was the sample size based on pre-study considerations of statistical power?*
7. *Was a satisfactory response rate achieved?*
8. *Are the measurements (questionnaires) likely to be valid and reliable?*
9. *Was the statistical significance assessed?*
10. *Are confidence intervals given for the main results?*
11. *Could there be confounding factors that haven't been accounted for?*
12. *Can the results be applied to your organization?*

This critical appraisal tool provides a means to carefully; simply and systematically assess the description and outcome of the studies reviewed to judge their trustworthiness, value and relevance. It looks at the way a study is conducted and examines factors such as internal validity, generalizability and relevance. Although several appraisal tools have been published for structuring the critique of questionnaire studies, the CEBMa tool was considered effective, simple and clear to apply.

The researcher extracted the data from the papers using a standardized predesigned data extraction form describing the aims, methodological characteristics and main findings of each study under the following classification terms in a table. First, the studies' titles and abstracts were analysed on the basis of both the inclusion and exclusion criteria. When it was unclear whether a study was relevant, it was marked for retrieval for a second revision by the researcher. Subsequently, the researcher assessed and read the full text of each paper. On retrieval, the researcher read each reference independently and made a set of notes. Finally, she extracted data according to the details of the aim of the study, the population, design, sample size, data collection instruments and the country in which the study was conducted, plus the key findings and reported results.

2.8 Results

2.8.1 Study selection

Initially, 15,953 bibliographic records were retrieved and four additional records were found through other sources. All duplicates were removed, leaving 10,819 relevant citations. All identified publication titles and abstracts were scanned to identify potentially relevant studies (n=1057). The full text of each of these relevant publications was then assessed, based on the inclusion criteria. Ultimately, only nine studies met the inclusion criteria. Figure 2.1 shows this process in the form of a PRISMA flow chart.

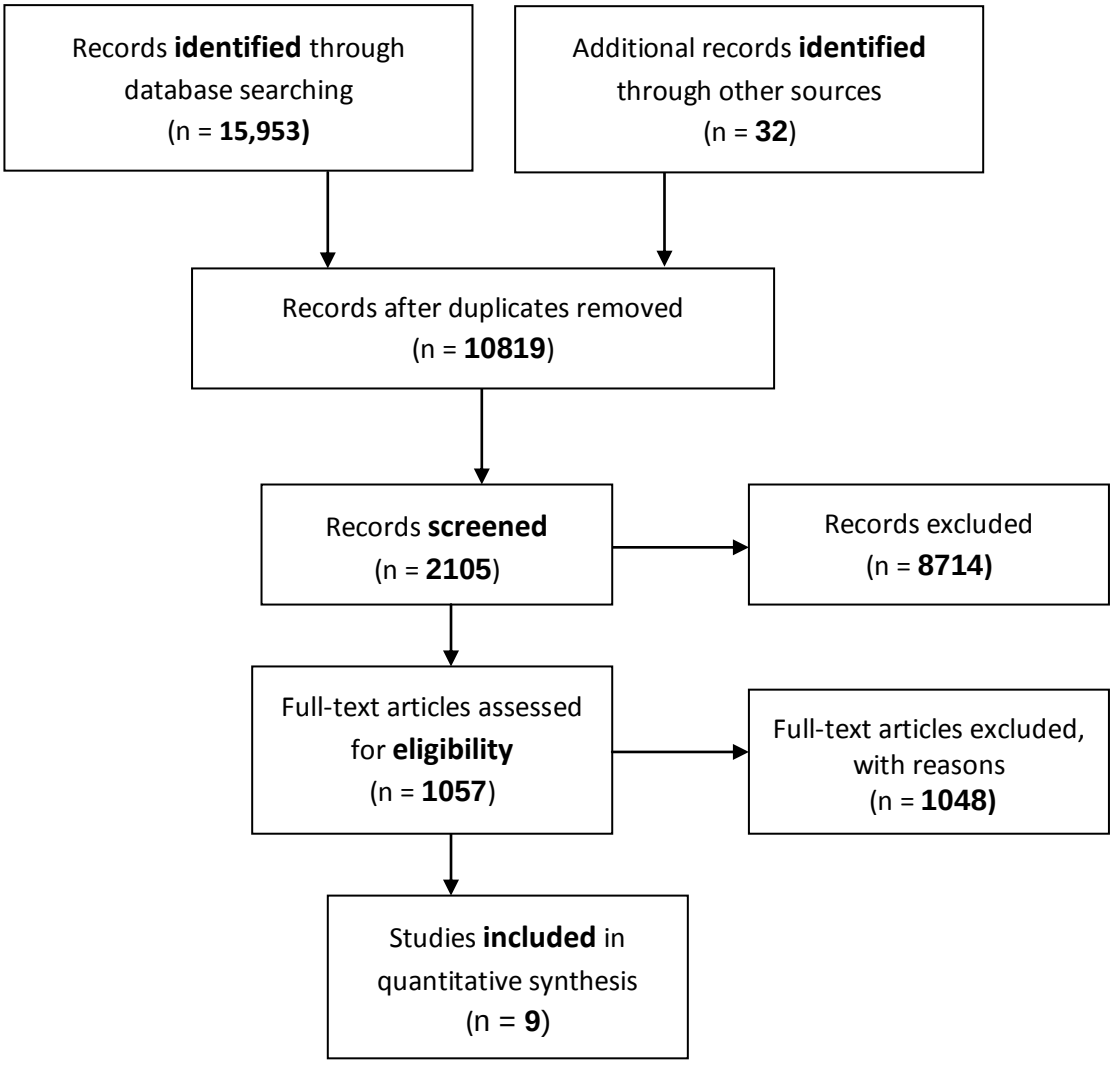

Figure 2.1: **Study selection process using PRISMA flow chart**

Source: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. Doi: 10.1371/journal.pmed1000097

The characteristics and results of all included studies were tabulated and analysis was qualitative. The papers that were excluded (n=1048) had an irrelevant focus in the context of the aim of the review, used an unsuitable age group or population, or did not report on the knowledge and awareness of university students.

2.8.2 Study characteristics and methodological critique of the studies

All nine studies included were conducted in MENA countries: Turkey (n=3), Iran (n=2), Egypt (n=1), Lebanon (n=1), United Arab Emirates (n=1) and Saudi Arabia (n=1). All included studies had a primary focus on university student's knowledge and awareness of SRH matters such as general sexual and reproductive health, contraception, STIs, HIV and their modes of transmission, the effects of religion and culture on women's sexual behaviour and their sources of knowledge and information. The focus of each was slightly different; for example, Barbour and Salameh (Barbour & Salameh, 2009) evaluated contraception knowledge, whereas Fageeh (2008) evaluated knowledge of STIs. The studies all used different questionnaires and presented their results in different ways.

As the critical appraisal table (Table 2.1) using the CEBMa tool shows, only five of the studies (Barbour, 2009; Ege, 2011; Milani, 2011; Simbar, 2005; Yilgor, 2010) addressed a clearly focused question or issue, highlighting need to sharpen the focus of SRH research in MENA countries. The cross-sectional survey design of all nine studies (Section 2.8.3) was well aligned with the research questions of five studies (Barbour, 2009; Ganczak, 2007; Milani, 2011; Simbar, 2005; Yilgor, 2010). Other studies' research questions would have been better approached by interviews for example (Fageeh (2008) or the alignment of the research method and research question was difficult to discern from the published description (Ege, 2011).

Only four studies (Ganczak, 2007; Milani, 2011; Simbar, 2005; Yilgor) clearly described how the study participants were selected. These could be used as positive examples to help improve reporting of this issue in future studies. All of the studies used sampling strategies that had the potential to introduce bias, although poor reporting made this difficult to discern in five studies (Barbour, 2009; Milani, 2011; Simbar, 2005; Yapici, 2010; Yilgor 2010). Only one study (Yilgor) appeared to achieve a sample representative of the targeted population. Two of the stronger studies (Ganczak, 2007; Simbar, 2005) considered statistical power in the study design. Response rates were reported for only three studies (see Section 2.8.5).

Participants' socio-demographic characteristics such as age, sex and level of the study were generally well reported in our included studies, but socio-economic status and religion were less reported. Description of socio-economic and religious status in the future studies might better inform on the generalizability for other settings. Justification of sample size and validation of the tools used were either not reported or poorly reported in many studies. Only the Iranian studies (Simbar, 2005; Milani, 2011) used well-structured study tools and sampling but still results cannot be generalised to the whole population.

Reports of reliability and validity measures varied widely among studies. None of the nine studies used a theoretical framework to guide their study design and analysis. Three studies pre-tested the survey instruments (Section 2.8.4). The majority of studies assessed the statistical significance of the results (Barbour, 2009; Fageeh, 2011; Ganczak, 2007; Milani, 2011; Simbar, 2005; Yilgor, 2010) and of these, all except the study by Fageeh also provided confidence intervals for the main results. It was much more difficult to discern from the study reports whether there may have been confounding factors that were not accounted for in the analysis.

2.8.3 Research designs

All nine studies had a cross-sectional design, sampled university students and used questionnaires as their survey instruments. All used self-administered paper-based questionnaires, with the exception of Gelany and Moussa (2013), who conducted questionnaire-based in-depth interviews. No randomised clinical trials were identified, due to the nature of the topic.

2.8.4 Pre-testing of survey instruments

Three sets of researchers explicitly indicated that they had pre-tested their survey instruments (Ganczak et al., 2007; Milani and Azarghashb, 2011; Yilgor, Arslankoyl, Kanik, & Erdogan, 2010), while the other studies did not report any pre-testing.

2.8.5 Participation rates

Only three studies clearly reported their response rates. Ganczak et al (2007) reported a rate of 89%, Yapici et al. (2010), who conducted their study in Turkey, a rate of 94.7% and Barbour and Salameh (Barbour & Salameh, 2009) 70.5%.

2.8.6 Characteristics of study participants

All nine studies evaluated students at one or more universities. They had sample sizes ranging from 32 (Yilgor et al., 2010) to 905 and included a total of 3,489 women, with ages mostly ranging from 18 to 30 years. Two of the studies surveyed female students only (El Gelany & Moussa, 2013; Milani & Azarghashb, 2011) and the remainder surveyed both male and female students. Only the results relating to female students are presented here. Five studies were conducted in Muslim countries and it is assumed that all students surveyed were Muslim. Barbour and Salameh (Barbour & Salameh, 2009) included both Muslim (7.5%) and Christian (84.4%) students, while the three studies

carried out in Turkey (Ege, Akin, & Can, 2011; Yapici et al., 2010; Yilgor et al., 2010) did not report the religion of their participants.

Table 2.2 lists the studies reviewed, giving details of settings, instruments, outcomes, participants and response rates. Only the first author is named in each case to save space.

Table 2.1: critical appraisal of the studies based on (CEBMa) tool

Authors	*Did the study address clearly focused question / issue?*	*Is the research method appropriate for answering the research question?*	*Is the method of selection of the subjects, clearly described?*	*Could the way the sample was obtained introduce (selection) bias?*	*Was the sample of subjects representative with regard to the population to which the findings will be referred?*	*Was the sample size based on pre-study considerations of statistical power?*	*Was a satisfactor y response rate achieved?*	*Are the measurements questionnaires likely to be valid and reliable?*	*Was the statistical significance assessed?*	*Are confidence intervals given for the main results?*	*Could there be confounding factors that haven't been accounted for?*	*Can the results be applied to your organization /STUDY?*
Barbour (2009	**YES**	**YES**	**NO**	**Can't tell**	**NO**	**Can't tell**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Ege (2011)	**YES**	**Can't tell**	**Can't tell**	**YES**	**NO**	**NO**	**No**	**NO**	**NO**	**NO**	**Can't tell**	**YES**
Fageeh (2008)	**NO**	**NO**	**NO**	**YES**	**NO**	**Can't tell**	**NO**	**NO**	**YES**	**NO**	**YES**	**YES**
Ganczak (2007)	**NO**	**YES**	**YES**	**YES**	**NO**	**YES**	**NO**	**YES**	**YES**	**YES**	**Can't tell**	**YES**
El Gelany (2013)	**NO**	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**Can't tell**	**YES**
Milani (2011)	**YES**	**YES**	**YES**	**Can't tell**	**NO**	**NO**	**NO**	**YES**	**YES**	**YES**	**YES**	**YES**
Simbar (2005)	**YES**	**YES**	**YES**	**Can't tell**	**NO**	**YES**	**YES**	**YES**	**YES**	**YES**	**Can't tell**	**YES**
Yapici (2010)	**NO**	**NO**	**Can't tell**	**Can't tell**	**NO**	**Can't tell**	**YES**	**Can't tell**	**Can't tell**	**NO**	**Can't tell**	**YES**
Yilgor (2010)	**YES**	**YES**	**YES**	**Can't tell**	**YES**	**Can't tell**	**NO**	**YES**	**YES**	**YES**	**Can't tell**	**YES**

Table 2.2: Study & methodological characteristics

Author (Year of paper)	Country	Year of study	Instrument	Outcomes reported	Age of female participants (years)	Number of females (total participants)	Participant inclusion criteria	Response rate
Barbour (2009)	Lebanon	2005	Self-administered questionnaire	Knowledge, attitudes, and practice regarding contraception	Mean = 20.3 (SD1.6)	905 (1410)	Non-married Lebanese students on 7 randomly selected campuses	70.5%
Ege (2011)	Turkey	2007	Self-administered questionnaire	Sexual and reproductive health knowledge and practices	NR	567 (1112)	Non-married students at Selcuk university	Not reported
Fageeh (2008)	Saudi Arabia	2008	Self-administered questionnaire	Knowledge of STIs	Range 18-25	345 (487)	University students in Jeddah	Not reported
Ganczak (2007)	UAE	2005	Self-administered questionnaire	HIV/AIDS knowledge, attitudes and educational needs	NR	148 (267)	First-year students at Al-Ain National University	89%
El Gelany (2013)	Egypt	2010	Interview questionnaire	Reproductive health issues and awareness	Mean = 19.6 (SD1.4)	220	Female students from 11 Egyptian universities attending annual meeting of Female University Students at El Minya University	Not reported
Milani (2011)	Iran	NR	Self-administered questionnaire	Knowledge and attitudes to STIs, sexual relations and reproductive health	Mean = 21.3 (SD 1.9)	104	Female students of three universities, living in Tehran dormitories	Not reported
Simbar (2005)	Iran	NR	Self-administered questionnaire	SRH Knowledge, attitudes and practices	Mean = 21.4 (SD 2.4)	654(1117)	Students of medical sciences at Qazvin University and of various subjects at Imam Khomeini International University	Not reported
Yapici (2010)	Turkey	2008	Self-administered questionnaire	Awareness of emergency contraception	Range 20-25	510 (1042)	Students from Mersin University who were present on campus at the time of the study.	94.7%
Yilgor (2010)	Turkey	NR	Self-administered questionnaire	SRH attitudes and their source of information	Mean = 18	32 (88)	First-year students at Mersin University Faculty of Medicine	Not reported

Key: NR = not reported; SD = standard deviation

2.9 Outcomes reported

The included studies reported a wide range of issues around SRH knowledge (Table 2.3), attitudes (Table 2.4) and information sources (Table 2.5). The most remarkable results have been summarized here, highlighting areas where misinformation, contradictory attitudes and risky behaviour were identified.

2.10 Results of individual studies

The findings of this review are summarized below under six headings, depicted in Figure 2.2: behaviour; attitudes and sexual practice; general knowledge and awareness; contraception knowledge and awareness; STI knowledge and awareness; and sources of information.

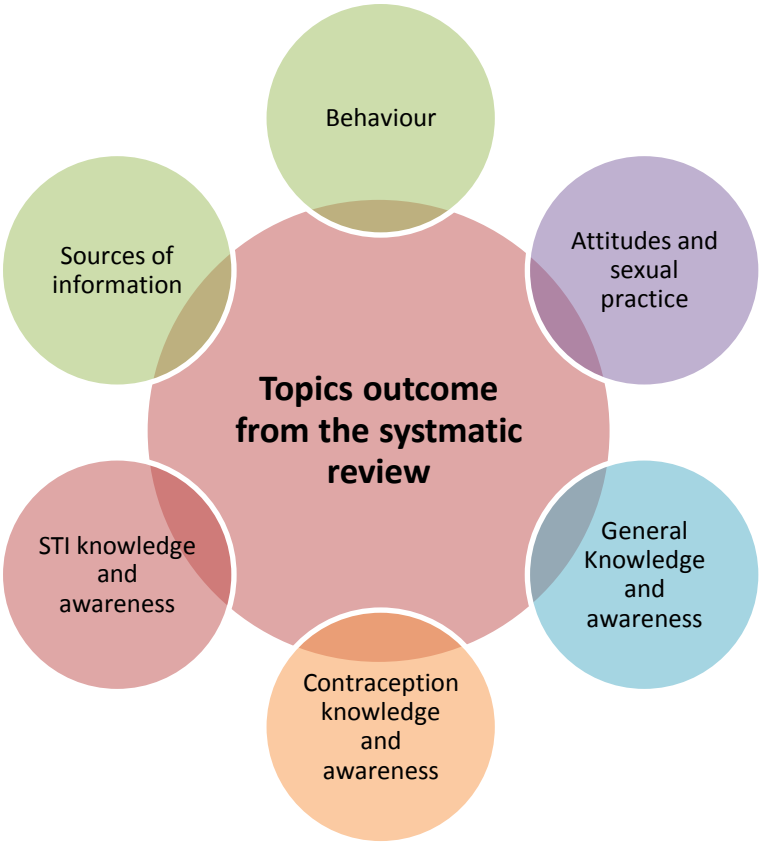

Figure 2.2: Outcomes of systematic review

2.10.1 Behaviour

Five of the studies reported respondents' SRH behaviour. Barbour and Salameh (Barbour & Salameh, 2009) state that 21.8% of respondents reported having had a sexual relationship, of whom 7% had experienced vaginal penetration and 3.1% anal penetration. A quarter (24.4%) stated that they had used contraception, of which oral contraceptives were the most frequent at 56.3%, then male condoms at 4.2%. Of the 21.8% who had had sexual relations, 40.6% had done so without contraception. The most common venues for sex were homes (parents absent) at 53.3%, beach chalets (43.1%) and cars (39.1%). Ege et al. (2011) found that 2.8% of women had had sexual intercourse, of whom 62.5% had used a contraceptive in the most recent episode. Methods used were condom (50%), oral contraceptive (30%) and coitus interruptus (20%). Simbar, Tehrani and Hashemi (2005) surveyed a subgroup of non-medical students about sexual behaviour and found that 0.6% had had sexual intercourse before marriage and were now married. Yapici et al. (2010) report that 0.6% of students had had unprotected sexual intercourse. In the Yilgor et al. (2010) study, 6.2% of students had had sex 'without intercourse' and none with intercourse. This distinction is unclear, but may refer to penetration or oral sex. Contraception had not been used. 3.1% also reported having masturbated and 18.8% said that they did not know the meaning of the word.

2.10.2 Attitudes to sexual practice

Table 2.6 lists the questions used to elicit attitudes to sexual practice. Ege et al. (2011) found that 86.8% of participants agreed that it was important for a girl to be a virgin before marriage and 77.1% thought that young men should have sex before marriage. In the Ganczak et al. (2007) study, 87.8% thought that people should avoid sexual relations outside marriage because of religion, other reasons being to prevent catching an STI

(28.3%), fear of society (5.4%) and fear of the family (5.4%). In contrast, Milani & Azarghashb (2011) asked about the reasons to have sexual relations before marriage. The most often cited (40.1%) was sexual needs and instinct, while 28.7% stated that it was due to a deficiency in affection, 22.7% referred simply due to lack of knowledge and 8.3% cited family problems.

2.10.3 General knowledge and awareness

El Gelany and Moussa (2013) found that 20% of respondents did not know the meaning of the word 'pregnancy', 45% had incorrect knowledge of the fertile period and 24.5% were unaware of the physical and psychological changes during pregnancy. In Milani and Azarghashb (2011), only 55.8% knew that the probability of pregnancy after sex was related to the menstrual cycle. As to Yilgar et al. (2010), 16.1% of their participants had no knowledge of the timing of becoming pregnant and 37.5% did not know where semen was produced. Almost half (45%) of students in the El Gelany and Moussa (2013) study did not know the danger signs in pregnancy of preeclampsia (high blood pressure) and threatened abortion (bleeding), while 25.9% were unaware of the complications that can occur in a teenage pregnancy. Ege et al. (2011) report that 27.9% did not think that termination of pregnancy was morally wrong, while only 15.5% of respondents to El Gelany and Moussa (2013) knew the meaning of 'termination of pregnancy' and only 11% were aware of the harmful effects of an unsafe termination.

2.10.4 Contraception knowledge and awareness

While very few (2.8%) of students in the Barbour and Salameh (Barbour & Salameh, 2009) study had never heard of a condom, 54.7% had never used one and only 47.5% knew that they were disposable. A further 2.1% did not know about oral contraceptives, 42.7% did not know there were different types and 35.1% did not know how to use them. El Gelany and Moussa (2013) identified 3.2% of female students as unaware of

the existence of any family planning methods. Similarly, Milani and Azarghashb (2011) had 2% who did not know of any contraceptive method, while of respondents to Simbar et al. (2005), 15% did not know about contraceptive pills and 32% did not know about condoms. Yapici et al. (2010) found that four fifths of female students had no knowledge of emergency contraception and that half of those who did know about it could not answer correctly as to when it should be taken. Similarly, Yilgor et al. (2010) found that 32.1% did not know about the day-after contraceptive pill.

Almost a quarter (22.8%) of respondents to Ege et al. (2011) did not think that a young man should be informed about how to use a condom and 14.6% thought that young people should not be allowed to use any method of birth control, even if they were sexually active.

2.10.5 Knowledge and awareness of sexually transmitted diseases

Barbour (2009) found that 16.5% of respondents thought that intimate washing could prevent STIs and 21.0% did not know that condoms could prevent STI transmission. Conversely, 11.9% of students in the Fageeh (2008) study thought that condoms were 100% effective against STIs. Ganczak et al. (2007) report that 5.4% thought that a person could catch HIV from a mosquito bite and 20.9% did not know that it could be caught from unprotected sex with a carrier. Ten percent of participants in the study of El Gelany and Moussa (2013) had not heard of the abbreviation STI, 25% had no knowledge of routes of transmission and 19.1% did not know that if one partner was infected then both partners need to be treated. A further 4.1% had not heard of HIV/AIDS and 17.7% did not know more than one route of transmission. In the Milani and Azarghashb (2011) study, 3% of students did not know the names of any STIs and 14.4% had not heard of AIDS. Some thought that diabetes mellitus, multiple sclerosis, haemorrhoids and anal fissures were STIs, while 41.5% did not know that sexual

contact was a way of being infected with an STI. Simbar et al. (2005) report that 14% did not know about AIDS, 60% did not know about syphilis and 61% did not know about gonorrhoea. In Yilgor et al. (2010), 34.4% did not know that condoms could be used to prevent STIs.

A few (3.6%) of students in the Ege et al. (2011) study said that they would not use an STI clinic for fear of being judged or recognized and 7.5% said that they had no knowledge of this kind of service. As many as 38.0% of respondents to Fageeh (2008) would not want to know if they had any kind of STI, but 90.1% thought that their partner was entitled to know if they had an STI, while 54.5% would ask for a divorce if their partner had an STI. Ganczak et al. (2007) found that 25% thought that if someone contracted AIDS, it was their own fault. Milani and Azarghashb (2011) state that 3.8% of students believed that if their friend had an STI they would hide it rather than seeking help. Finally, 75% of respondents to Simbar et al. (2005) thought that applying moral principles was the best way to prevent HIV transmission.

2.10.6 Sources of information

Only four studies report students' sources of information. In only one of these (El Gelany & Moussa, 2013) is the Internet mentioned, but by more than 70% of respondents, while TV and radio are identified as sources by over 60% of their respondents. Three studies (El Gelany & Moussa, 2013; Yapici, et al., 2010; Yilgor et al., 2010) report the use of books and again the numbers are consistently high at an average of around 60%. On the other hand, results varied considerably between the two studies reporting the use of newspapers and magazines, at 22.3% for El Gelany and Moussa (2013), compared with 37.5% for Yilgor et al. (2010). Two studies (El Gelany & Moussa, 2013; Yapici et al., 2010) identify the media as sources, with low rates of use, under 20%. Friends are cited as a source of information in all studies and the results

vary from 15% in El Gelany and Moussa (2013) to 44.3% in Ege et al. (2011). Similarly, the percentages reporting use of the family vary from 5% in El Gelany and Moussa (2013) to 53% in Ege et al. (2011). The results suggest that mothers were used as sources of information more than fathers in the one study to report both (Yilgor et al., 2010). This was also the only study reporting school as a source of information, at 40.6%. There was a very wide variation in the reported use of health professionals, from 6.3% (YILGÖR, ARSLANKÖYLÜ, Kanik, & ERDOĞAN, 2010) to 46.6% (Ege, Akin, Can, & Ariöz, 2011).

Table 2.5 lists students' sources of information in the studies reviewed.

Table 2.3: Areas of knowledge assessed in the studies

Authors	Knowledge of pregnancy	Knowledge of menses	Knowledge of contraceptive methods	Knowledge of STI	Knowledge of STI prevention	Knowledge of HIV	Knowledge of HIV prevention	Demand for more information	Demand for SRH services	Sources of information	Ways to seek help and advice
Barbour (2009)	X	√	√	√	√	X	X	X	X	X	√
Ege (2011)	X	X	X	X	X	X	X	√	√	√	√
Fageeh (2008)	X	X	X	√	X	X	X	√	X	X	X
Ganczak (2007)	X	X	X	X	X	√	√	√	√	X	X
El Gelany (2013)	X	X	√	√	√	√	X	X	X	√	X
Milani (2011)	√	X	√	√	√	X	√	X	X	X	√
Simbar (2005)	X	X	√	√	√	X	√	X	X	X	X
Yapici (2010)	X	X	√	X	X	X	X	X	X	√	X
Yilgor (2010)	√	X	X	X	√	X	X	√	√	√	√

Key: X = No; √= YES

Table 2.4: Attitudes assessed in the studies

Authors	When to get married and have children	Virginity	Intercourse before marriage	Masturbation	Abortion	Birth control methods before marriage	HIV/AIDS	STIs within relationships	STI prevention
Ege et al. (2011)	X	√	√	X	√	√	X	X	X
Fageeh (2008)	X	X	X	X	X	X	X	√	√
Ganczak et al. (2007)	X	X	√	X	X	X	√	X	X
El Gelany and Moussa (2013)	√	X	X	X	X	X	X	X	X
Milani and Azarghashb (2011)	X	X	√	X	X	X	X	X	X
Yilgor et al. (2010)	X	X	X	√	X	X	X	X	X

Key: X = No; √= YES

Table 2.5: Sources of information on SRH

Authors	Internet	Books	TV/radio	Media (TV, Radio and internet)	Newspapers & Magazines	Friends	Mother	Father	Other Family	High schools	Doctors and other health professionals
Ege et al. (2011) (SRH)	X	39.3%	X	X	X	44.3%	X	X	53%	X	46.6%
El Gelany and Moussa (2013) (SRH)	72.3%	73.2%	X	X	22.3%	X	X	X	X	X	X
El Gelany and Moussa (2013) (Sources of information regarding menstrual cycle changes)	X	X	X	16%	X	15%	35%	X	5%	X	X
Yapici et al. (2010) (SRH)	X	51.9%	X	6.7%	X	18.3%	X	X	X	X	16.3%
Yilgor et al. (2010)	X	46.9%	50.0%	X	37.5%	3.1%	53.1%	18.8%	28.2%	40.6%	6.3%

Key: X = No; √= YES

Table 2.6: Attitude questions in included studies

Study	Attitude questions/statements
Barbour (2009)	No attitude questions
Ege (2011)	1. It is important for a young girl to be virgin before marriage. 2. It is wrong for a young person to start sexual intercourse before marriage. 3. Young men can have sexual intercourse before marriage. 4. A young girl has to think about the consequences of pre-marital sexual intercourse. 5. Abortion is morally wrong. 6. I get disturbed if an unmarried girl has an abortion. 7. Information about birth control methods should only be given to married couples. 8. A young man should be informed about how to use a condom. 9. A young person should not be allowed to use any birth control method even if they Are sexually active. 10. It is inappropriate to ask unmarried couples about contraceptives.
Fageeh (2008)	1. Would you want to know if you have any kind of STIs? 2. Do you think you are entitled to know if your partner had any kind of STIs? 3. If you get an STIs, do you think your partner is entitled to know? 4. Do you think that education about STIs should be taught in school?
Ganczak (2007)	1. To prevent AIDS spreading in UAE all people entering UAE should be tested for HIV. 2. People with HIV should inform others about their infection. 3. People with HIV should be punished if they transmit the virus to other people. 4. I would visit my friend if she/he had AIDS. 5. People with AIDS should not be allowed to become teachers. 6. People with HIV should be made to live apart from the general population. 7. I don't feel sorry for people who caught AIDS because it is their own fault. 8. Children with HIV should be allowed to go to school with non-infected children.
El Gelany (2013)	No attitude questions
Milani (2011)	1. In your opinion, do your intimate friends have boyfriends? 2. What do you think about sex before marriage? 3. In your opinion, how is the awareness of students about sexual issues? 4. In your opinion, what are the reasons that females and males have a sexual relationship before marriage? 5. You think what percentages of your friends may have sexual relationships with intimate boyfriends? 6. If your friends were infected by sexual transmitted diseases, where would they refer for help?
Simbar (2005)	1. Youth, single or married, should know how to use contraceptives. 2 Educational booklets about pregnancy and STIs/AIDS prevention methods should be available in youth communities. 3 Reproductive health services are necessary because temporary marriage is allowed in Sharia. 4 The best method for prevention of unwanted pregnancy and STIs/AIDS is abstinence until marriage. 5 Contraceptive use for a long period causes infertility. 6 Contraceptive uses before marriage causes infertility. 7 Contraceptives including condoms should be available easily to youth. 8 Education about pregnancy and STIs/HIV/AIDS prevention methods leads to high-risk sexual behaviours. 9 Youth do not need reproductive health information because they have no premarital intercourse. 10 The best method for prevention of unwanted pregnancies and STIs/AIDS is to withhold information from youth.
Yapici (2010)	No attitude questions
Yilgor (2010)	1. Is masturbation useful or harmful to health? 2. What should be the gender of staff that informs you about sexuality?

2.11 Discussion

This review, in order to remain relevant to the present study, has considered levels of awareness and knowledge of SRH among female university students in MENA countries in particular, providing a platform for this study to identify the gap in the literature on the SRH needs of Saudi women and those in countries with a similar culture.

While much of the research identified lacked rigour, described methodological characteristics of the study inadequately and reported little data on the social and individual factors that might influence SRH knowledge and information-seeking behaviour among this group, a key finding of the review is the general lack of knowledge of SRH matters among young females in MENA countries. The lowest levels of awareness reported were for protection, being as low as 13% in Lebanon (Barbour & Salameh, 2009), while STI awareness ranged from 53% in Saudi Arabia (Fageeh, 2008) to 1% in Iran (Milani & Azarghashb, 2011). Overall, the studies reported similar low levels of knowledge and awareness of different aspects of SRH, except HIV. Indeed, the highest knowledge levels reported were for HIV, at 96% in both Saudi Arabia and the UAE and 85.6% in Iran. This may be linked to the extensive awareness campaigns on this topic that have been carried out worldwide and at the local level in some of these countries.

As shown by some of the findings on use of contraception, knowledge does not always translate into behavioural change; furthermore, sex education is vital for STI prevention and for young females' awareness of how to protect themselves (Samkange-Zeeb, Spallek, & Zeeb, 2011). This need was clearly reported among young university students in the majority of the studies reviewed. Additionally, Fageeh (2008) and Ganczak (2007) strongly recommend the introduction of sex education programmes.

Beyond HIV, attention should be paid to other STIs such as chlamydia, gonorrhoea and syphilis, for which the level of knowledge is still quite low (e.g. Milani and Azarghashb, 2011). A higher level of knowledge might have been expected among this relatively well educated population, raising questions about the corresponding level among less well educated or uneducated people in the countries concerned (Ganczak et al., 2007; Tavoosi et al., 2004).

Where women are not given information on SRH and where the education system does not provide it, they have to seek such information on their own. This review clearly reveals that in certain places, especially the MENA countries, cultural and religious beliefs may hinder women in their search for information, making it difficult for them to protect themselves against the potentially dangerous effects of SRH issues.

This review has covered nine publications reporting research conducted in the Middle East, where it is clear that the situation (including in Saudi Arabia) differs from that in other areas of the world, in terms of the place of women in society and in the family (Hamdan, 2005), the accessibility of information and women's freedom to discuss these matters and educate themselves on them. Significant barriers are placed in the way of women seeking such information and this is particularly true of unmarried women (Walker, 2014). Middle Eastern societies also persist in being preoccupied with women's sexuality, perhaps due to the deep reflection of their moral identity (Stephan, 2006).

While it is well known that sexual relationships outside marriage are not acceptable or permitted in Muslim culture or in most Middle Eastern countries, the results of this review (Barbour, 2009; Ege, 2011; Yilgor, 2010; Yapici, 2010) illustrate clearly the contradictory effects of modernization on women's sexual behaviour, which include

some risky sexual practices and behaviour. The studies also shed light on the suggestion that a number of problems, in areas such as culture and tradition, religion, women's position in society and the availability of services, must be tackled in order to assist in changing the current situation by making relevant information more accessible to women (Ege et al., 2011; Ganczak et al., 2007; Simbar et al., 2005).

A number of issues arose during the course of this review which merit further research:

- There is a gap in knowledge concerning Saudi women's knowledge of and attitudes to their SRH, their related needs and the sources from which they obtain their knowledge.
- There are needs for more rigorous work, as most of these studies lacked rigor and some of them didn't report some of their methodological process.
- Islamic values, including the condemnation of sexual relations before marriage and the prohibition of homosexual relationships for both males and females, as well as the presumption in some countries that STIs or HIV are uncommon, result in a lack of data in the available research. However, the research examined in this review indicates that premarital sexual relations do occur in a number of these Islamic nations, including Turkey, the United Arab Emirates, Iran and Lebanon, specifically among university students.
- The lack of verifiable facts and qualified and knowledgeable health professionals can result in indecision and a lack of clarity for women in these countries. Media sources and friends provide much of these women's knowledge with regard to SRH matters (e.g. Barbour & Salameh, 2009; Fageeh, 2008; El Gelany & Moussa, 2013; Yapici et al., 2010; Yilgor et al., 2010). This suggests that it would be useful to target public health information interventions at this group of students

using the Internet, TV, radio and possibly books as the principle sources of information.

- A number of the studies reviewed emphasise the suggestions made by participants that more SRH education should be introduced, both in schools and in universities (Ganczak et al., 2005; Fageeh, 2008; Simbar et al., 2005).
- There are insufficiently detailed studies focusing on women's sexual and reproductive health in Saudi Arabia.

2.12 Limitations

This was a small-scale review, carried out in the course of postgraduate research. Therefore, the literature search was conducted online; there was no hand search of hard copies of journals, nor was the grey literature covered. As such, the possibility that some relevant literature was not included must be considered one of its limitations; the researcher may have missed some papers published in MENA journals that cannot be accessed on the Internet and a more detailed approach to the research might have led to the discovery of further literature. In addition, the exclusion criteria, such as the restrictions with regard to age, year and context, may have excluded some useful papers. There are also some limitations to the primary studies. Many of the studies lacked rigour and although their scope was relevant to this research, they reported little data on the social and individual factors that might influence SRH knowledge and information-seeking behaviour among this group.

The rigour of the research methodology in studies of SRH can be improved by paying more attention to the fundamental principles of data analysis, study design, and reporting of the findings.

There are several advantages for self-completed questionnaires. Questionnaires that mainly use closed questions can be easy and quick to complete (Bowling, 2009) and that was beneficial for most of these studies, as students might not have enough time for interview. In addition socially desirable responses are less likely in questionnaire responses than interviews, due to less personal contact between research participants and between participants and the researcher. Questionnaire data is easier to code and analyse than interview data: for example, the use of closed questions can reduce the likelihood of misclassifying the answers.

At the same time, questionnaires have some disadvantages; such as the greater risks of missing data, incomplete questionnaires and low response rates and questionnaires normally produce data that is less rich than most interview transcripts. It's argued that questionnaires tend to be inadequate to understand some forms of information, and there is no way to tell how honest a participant is being.

It is possible to overcome some of these disadvantages by carful wording and structuring of the questionnaire to make it clearer for the participants. Also the presence of the researcher at the site will help the participants to ask questions or clarification when they need it and this is what happened in most of the studies reviewed here.

The main limitation of the review is the small number of relevant studies and the number of participants, which mean that it is unclear as to whether the results are generalizable across the MENA countries and among female students within the MENA country surveyed. Finally, the coding of such studies in the databases is not always accurate, so studies may have been missed because of this.

2.13 Conclusions

This final section of the review chapter draws general conclusions, and then considers gaps in the current literature regarding SRH knowledge in Saudi Arabia, which the present study seeks to address.

2.13.1 General conclusions

The majority of the studies produced comparable findings, in terms of women's lack of awareness and knowledge of SRH issues. It is clear that teaching and the provision of relevant information are vital factors in terms of improving that knowledge, as well as with regard to protecting women from the dangers posed to their SRH. While this review is centred on the female perspective, it should be emphasised that men's behaviour can significantly impact upon women's SRH, in terms of the decisions they make and their role in sexual relations and reproduction. As such, the male perspective must also be considered to ensure that a complete picture is obtained (UNDP, 2003). Furthermore, it is important to remember the significant differences in SRH issues that exist in different parts of the world; there is no universally applicable solution.

As far as the researcher is aware, this is the first time that a systematic review has been carried out on women's SRH knowledge in Middle Eastern countries in particular, among female university students. Only nine studies were found that met the inclusion criteria. More research is therefore needed in MENA countries to provide information

on women's SRH, to expose these taboo topics to public debate and to use the information gained to introduce successful interventions in this specific population. There is a need for appropriate health education programmes and services to be developed by the providers in these countries such as ministries of health and education, as well as non-governmental organizations.

2.13.2 Gaps in the current literature regarding Saudi Arabia

This review of studies of SRH knowledge, attitudes and behaviours among female university students in MENA countries shows that these studies have limitations, that their findings cannot be generalised. There remains a wide gap in knowledge regarding Saudi women's SRH knowledge, attitudes and behaviour; including the individual and social factors that affect beliefs, values and behaviours in relation to sex, relationships and SRH; as do those affecting the perceived risks of infection or pregnancy among sexually active women. A few studies have looked at Saudi women's reproductive health in terms of pregnancy outcomes and contraceptive usage, but their SRH knowledge and needs have attracted less interest and will therefore form the two main components of the research reported in this thesis. Figure 2.3 shows an overview of the topics that this doctoral study included.

In Saudi Arabia and most other Middle Eastern countries, women's sexual and reproductive health is an area that is usually linked with moral views and traditions, often presented as a religious matter. According to Hamdan (2005), in the Saudi community, women's issues are always linked to Islamic teaching. Little is known in relation to the SRH knowledge, needs, attitudes and practices of Saudi women. The widespread assumption is that women have no need to be knowledgeable about SRH issues, especially if they are single, since sex is a taboo topic and not open to discussion.

Moreover, the high social and religious value placed on virginity in most Arab countries, including Saudi Arabia, puts young unmarried women at risk of stigma or a negative response from health professionals if they try to obtain contraceptive or SRH services or advice (DeJong & El-Khoury, 2006).

Despite the fact that religious teaching and the culture in Saudi Arabia prohibit sexual activity or relationships before marriage, such practices may occur. Unfortunately, nothing is known about this aspect of Saudi society, which therefore warrants investigation, but will not be part of this doctoral study. In Saudi Arabia, the programmes or services currently available are exclusively concerned with reproductive health, focusing on pregnancy, birth and contraception, not on the overall concept of sexual and reproductive health. Furthermore, these programmes are intended to serve only married women.

Ignorance and denial are common themes among community members and healthcare providers when it comes to women's SRH. Fageeh (2008), in a study of the awareness of STIs among adolescents in Saudi Arabia, asserts that Saudi society's ignorance and fear of diseases, especially STIs, stand as obstacles to most screening and prevention programmes. Young women have the right to obtain the appropriate information and skills to protect themselves from STIs, unplanned pregnancy, unsafe abortion and sexual abuse.

Thus, the purpose of the present study is to explore knowledge, attitudes and sources of information on SRH among females at university settings in Riyadh, the capital city of Saudi Arabia.

The next chapter explains the methodology employed for this study, including the research design and setting. It also sets out the research questions and hypotheses that this thesis seeks to address.

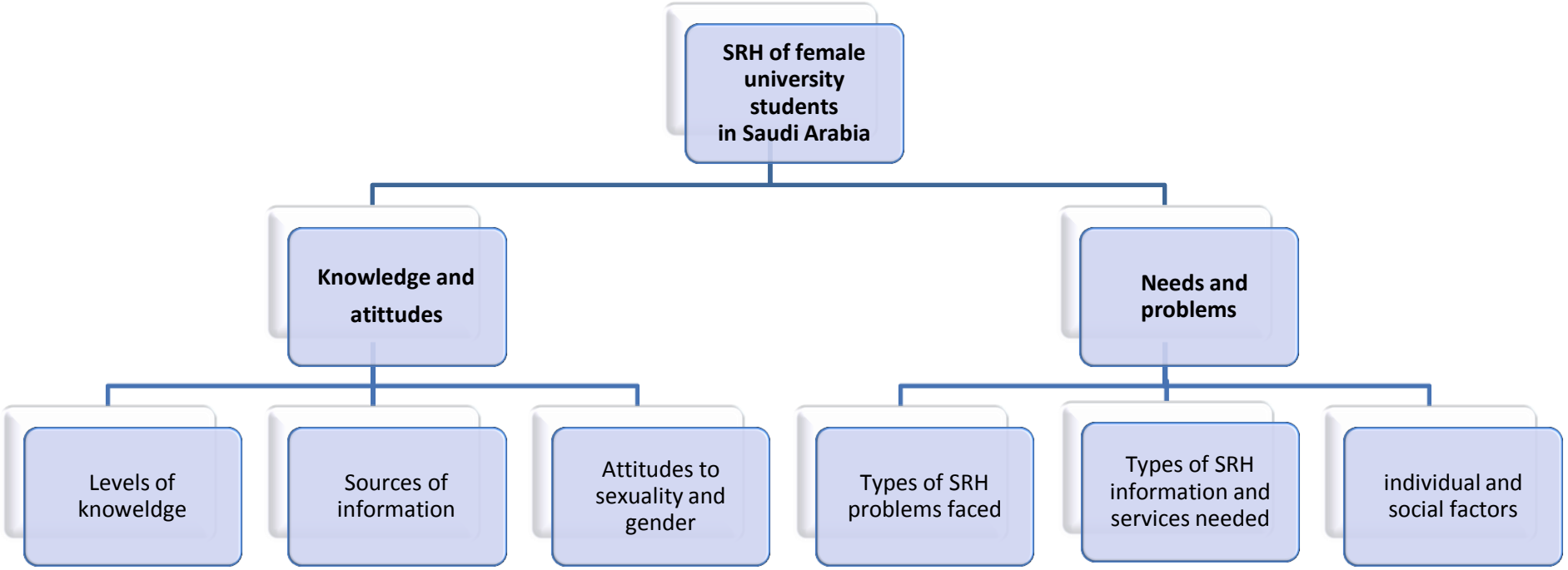

Figure 2.3: Overview of topics examined in the study

Chapter 3

Methods

This chapter describes the methodological aspects of the study: the research design, research questions and research hypotheses; the psychometrically tested data collection tool used, sample size calculation and sampling techniques; the data collection processes and data analysis; the ethical considerations and limitations of the study.

3.1 Study design

As noted in the previous chapter, a systematic review of the literature has failed to find sufficiently detailed studies focusing on women's sexual and reproductive health in Saudi Arabia, making it impossible to obtain a clear picture of Saudi women's knowledge, attitudes and sources of information regarding SRH. Given that the intention of the present study is to gain improved insight into aspects of women's SRH in Saudi Arabia, an exploratory study was planned. Due to the sensitivity of the subject in this cultural context, a quantitative study in the form of a survey distributed to female university students was considered to be the most acceptable approach. This approach supported assessment of SRH knowledge and attitudes among female students, measurement of the extent of variation in their knowledge and attitudes, and examination of factors that may be associated with this variation.

A self-administered anonymous questionnaire was chosen for several reasons: the sensitivity of this subject in the cultural context of Saudi society which means that interview-based data collection would not be acceptable, the need to ensure confidentiality and the hope that the response rate would be boosted because students could participate without being identified. Thus, using this research design allowed the collection of

satisfactory data to undertake exploratory statistical analysis to inform subsequent research.

The literature reviewed in Chapter 2 suggests that it is reasonable to assume that there is poor knowledge and awareness among Saudi women regarding their SRH, but this hypothesis has not yet been tested empirically. Therefore this study will examine the SRH-related knowledge and attitudes of a specific group of Saudi women: university students in Riyadh. The rationale for selecting this particular group of women is explained in section 3.6 and limitations arising from this selection are discussed in Chapter 7.

. The researcher's aim is to utilise the findings of this study to inform recommendations on culturally appropriate sexual health education programmes and sexual health services.

On the other hand, this is an exploratory study using a cross-sectional survey of Saudi female university students in Riyadh city. The reasons for adopting this design were:

- The systematic literature review carried out as part of this study found no prior studies that had been conducted in a similar context such as universities in Saudi Arabia.
- There is a gap in knowledge concerning Saudi women's knowledge of and attitudes to their SRH, their related needs and the sources from which they obtain their knowledge.
- It would be appropriate to explore and gain an improved understanding of the status of SRH among Saudi women and university students in particular.
- SRH is a taboo topic in Saudi Arabia; the study design needed to reflect the sensitive nature of the research in order to obtain the information needed.
- The cross-sectional survey design was considered appropriate for this study due to the limitations in the resources available, especially the time.

3.2 Research questions

The questions addressed by the present research are set out below.

1. What is the level of SRH knowledge among Saudi female university students? (Exploratory question)
2. What are the attitudes of Saudi female university students towards sexual relationships and sexual norms? (Exploratory question)
3. Is there an association between demographic characteristics (age, type of university attended, level of study, area of residence, marital status, mother's level of education, father's level of education, self-rated religiosity, self-rated cultural conformity, willingness to discuss sex-related matters with one's parents) and general knowledge of sexual and reproductive health?
4. Is there an association between personal activities and media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs, books or films depicting sexual activity) and general knowledge of sexual and reproductive health?
5. Is there an association between demographic characteristics (age, type of university attended, level of study, area of residence, marital status, mother's level of education, father's level of education, self-rated religiosity, self-rated cultural conformity, willingness to discuss sex-related matters with one's parents) and knowledge of contraceptive methods?
6. Is there an association between personal activities and media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs, books or films depicting sexual activity) and knowledge of contraceptive methods?

7. Is there an association between demographic characteristics (age, type of university attended, level of study, area of residence, marital status, mother's level of education, father's level of education, self-rated religiosity, self-rated cultural conformity, willingness to discuss sex-related matters with one's parents) and knowledge of STIs/HIV?

8. Is there an association between personal activities and media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs, books or films depicting sexual activity) and knowledge of STIs/HIV?

9. Is there an association between the demographic characteristics (age, type of university attended, level of study, area of residence, marital status, mother's level of education, father's level of education, self-rated religiosity, self-rated cultural conformity, willingness to discuss sex-related matters with one's parents) and total knowledge (combination of SRH knowledge, knowledge of contraceptive methods and knowledge of STIs/HIV)?

10. Is there an association between personal activities and media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs, books or films depicting sexual activity) and total knowledge?

11. Is there an association between demographic characteristics (age, type of university attended, level of study, area of residence, marital status, mother's level of education, father's level of education, self-rated religiosity, self-rated cultural conformity, willingness to discuss sex-related matters with one's parents) and personal attitudes towards sexuality and gender?

12. Is there an association between personal activities and media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs, books or films depicting sexual activity) and personal attitudes towards sexuality and gender?
13. What are students' sources of information and knowledge regarding their SRH? (Exploratory question)

3.3 Research hypotheses

In addressing these questions, the research tests the following hypotheses:

1. There is no association between demographic characteristics and general knowledge of sexual and reproductive health (null).
2. There is an association between demographic characteristics and general knowledge of sexual and reproductive health (alternative).
3. There is no association between personal activities and media exposure and general sexual and reproductive health knowledge (null).
4. There is an association between personal activities and media exposure and general sexual and reproductive health knowledge (alternative).
5. There is no association between demographic characteristics and knowledge of contraceptive methods (null).
6. There is an association between demographic characteristics and knowledge of contraceptive methods (alternative).
7. There is no association between personal activities and media exposure and knowledge of contraceptive methods (null).

8. There is an association between personal activities and media exposure and knowledge of contraceptive methods (alternative).
9. There is no association between demographic characteristics and knowledge of STIs/HIV (null).
10. There is an association between demographic characteristics and knowledge of STIs/HIV (alternative).
11. There is no association between personal activities and media exposure and knowledge of STIDs/HIV (null).
12. There is an association between personal activities and media exposure and knowledge of STIs/HIV (alternative).
13. There is no association between demographic characteristics and total knowledge (null).
14. There is an association between demographic characteristics and total knowledge (alternative).
15. There is no association between personal activities and media exposure and total knowledge (null)
16. There is an association between personal activities and media exposure and total knowledge (alternative).
17. There is no association between demographic characteristics and personal attitudes towards sexuality and gender (null).
18. There is an association between demographic characteristics and personal attitudes towards sexuality and gender (alternative).

19. There is no association between personal activities and media exposure and personal attitudes towards sexuality and gender (null).
20. There is an association between personal activities and media exposure and personal attitudes towards sexuality and gender (alternative).

3.4 Sampling

Sampling is an important step in the research process, particularly in quantitative studies, whose findings can be seriously compromised by sampling inadequacies. A stratified random sample was considered ideal, but would have required access to student records at the Ministry of Higher Education and registers held by each university. The privacy policies of some of the universities precluded the use of these records. Initial attempts were made to draw a stratified random sample, but lack of access to complete student lists made such a sample unattainable. The convenience sampling technique was therefore considered the most appropriate for this study.

Convenience sampling is a type of non-probability sampling where the selection is not based on randomization. In other words, data are collected from a targeted sample of those available to participate in the study. Bowling (2014) warns that because it is non-random, selection bias and errors are often associated with convenience sampling, which can lead to over-representation or under-representation within the sample. Nevertheless, Moser and Kalton (1971) argue that it can give reasonably accurate overall results. It is also relatively efficient in terms of time and cost, and is very easy to administer (Polit & Beck, 2006).

Students were included from all the following groups:

- Students at state universities.
- Students at private universities.
- Single students.
- Married students.
- Undergraduate students.
- Postgraduate students.
- All majors and schools.

This was achieved by the researcher securing permission to collect data in two state and two private universities, which she visited at times of the academic year when undergraduate and postgraduate courses were being taught. She collected data in different buildings to meet students from all majors and schools. In this process, both single and married students agreed to complete the questionnaire.

The use of convenience sampling provides insight into the diversity of the composition of higher education in Saudi Arabia. For example, the SRH-related knowledge and attitudes of students at private universities may possibly differ from those of students at state universities as a result of social status and class, as private universities usually attract the more affluent students. These students may also have access to better resources, such as internet connectivity on campus, computers and other facilities, which in combination with a greater flexibility on the part of the university administration may have affected students' SRH knowledge and so will influence the research outcomes and results. In addition, by using convenience sampling, the researcher was able to recruit students, with no restriction as to their classes, during their daily activities at the university, taking into consideration

their busy study schedules, approaching them in areas where they tended to gather, such as canteens, waiting rooms and students' lounges.

3.5 Sample size

In the absence of firm data in the literature about the level of general knowledge about SRH, contraceptive methods and STIs/HIV among Saudi female university students, it was assumed that 50% would have a low level of knowledge, with a precision of ±5% (i.e. a 95% confidence interval) and that at the 0.05 level of significance, 384 study subjects would be needed. By considering differences of 15%, 20% and 30% in the risk factors associated with a low level of such general knowledge when compared with a high level in this population, at a 0.05 level of significance and with 80% power, we would need 157, 95 and 40 subjects respectively in each of the two groups of subjects (with low and high levels of knowledge) for each of the three outcome variables (general knowledge of SRH, contraceptive methods and STIs/HIV). Hence, a sample size of 384 would facilitate the descriptive and bivariate analysis to achieve the statistical significant estimates.

The study subjects were selected from a sampling frame of the eight private and five state universities in Riyadh city that admitted only female students. Of all the 13 approached, four universities (two from each sector) agreed to permit data collection from their students. As fewer students attend private universities than governmental ones, the sample sizes were in the ratio of 2:1, i.e. 253 and 131 from state and private universities respectively. Students were approached to participate in the study with the consent of the university authorities. Due to the sensitivity of the research subject, random sampling procedures were not feasible, as noted above; hence a non-random convenience sampling method was used. Efforts were made to draw the planned sample of 460 participants from across all participating universities. Table 3.1 lists the 13 female-only universities in

Riyadh and their responses, while Figure 3.1 in Chapter 4 provides details of the actual sample drawn.

Table 3.1: Universities' responses to requests to participate in the study

University code	Sector	Response
A	*State*	*Agreed*
B	State	Refused
C	State	Refused
D	State	Refused
E	*State*	*Agreed*
F	*Private*	*Agreed*
G	*Private*	*Agreed*
H	Private	Refused
I	Private	Refused
J	Private	Refused
K	Private	Refused
L	Private	Initially agreed then withdrew
M	Private	Initially agreed then withdrew

3.6 Participants

. The target population for the purpose of the present study was female Saudi students registered in all of the schools at the participating universities. There were two reasons for focusing on women only. First, women's SRH is an area, which is commonly linked with moral views and traditions; it is often presented as an aspect of religion, making it an infrequent area of research in Saudi Arabia. Secondly, given the sensitivity of this topic in Saudi society and the fact that the researcher is female, it was considered more appropriate to recruit females rather than males as respondents, bearing in mind that the educational system in Saudi Arabia separates male from female students at all colleges and universities. Added to that, in many societies, women are subject to poor SRH more than men. Thus, Women are usually unable to use their rights to reject early marriage, to reject unprotected sexual intercourse or even to prolong their birth interval (WHO, 2002; WHO, 2007a).

. While The reason for focusing on university students, this group are considered to be a healthy and young group. However, they constitute an important population group, which in particularly needs sexual, and reproductive health knowledge and services.

3.7 Research sites and setting

All levels of education in Saudi Arabia are provided free of charge and are delivered in gender-segregated settings, except in some contexts such as medical schools and some private universities, where they are not completely segregated. A conscious decision was made to choose university settings where only female students were present, as this the norm in this context, and would give the researcher and the participants more privacy and autonomy to complete the questionnaires and to convey their feelings and opinions without concerns or insecurities. Collecting data away from male-dominated surroundings was planned to promote more open responses and a higher response rate.

The participating universities taught several subjects and specialities such as medicine, humanities, religion and sciences at both undergraduate and postgraduate levels. The selection of a sample from these universities, located in the capital city, was considered to provide a good representation of the educated female population in Saudi Arabia, but the findings may have limited generalizability to all Saudi females.

There were four reasons for choosing Riyadh as the site of this study. First, the population of the city is approximately 10 millions, comprising people from a variety of ethnic and socio-economic backgrounds. As a result, the research population is heterogeneous. Second, Riyadh is the urban centre of the region, where the population is considered more open minded, where the majority are well educated compared to rural areas, and where people are more likely to be exposed to new ideas, information and opportunities, including those related to SRH concepts further more, Riyadh has 13 female universities

which made it feasible to complete the study in one city only. Finally, it was convenient for the researcher, who was a resident of the city.

3.8 Ethical approval and consent to participate

Ethical approval for the study was granted by the Queen Mary University of London Research Ethics Committee (reference QMREC2012/54) and no further ethical approval was required from the participating universities only local approval to access these universities. Regarding consent to participate, the students were informed verbally and in writing via an information sheet provided to them that they had the right to choose not to participate in the study and that their anonymity was assured, as the questionnaires would be completed anonymously and completed questionnaires would be kept secure and confidential (see section 3.15). Students were informed that they could withdraw from the study at any time. This could occur by the respondent returning the questionnaire to the researcher; taking her questionnaire away rather than returning it to the researcher; or by sealing her blank or crossed through questionnaire in the envelope and returning that to the researcher who would not know of this type of withdrawal until the envelopes were opened at the end of the working day. On the other hand, the names of the universities were also kept confidential.

3.9 Access and approval for multi-site, culturally sensitive research

Lee (1993, p.2) warns that "sensitive topics create both methodological and technical issues for the researcher. The issues may include (1) conceptualisation of the topic, (2) defining and accessing the sample, (3) mistrust."

Relevantly, Saks and Allsop (2007) state that confidentiality; anonymity, privacy and voluntary participation are the main ethical considerations in any study. Thus, conducting research at multiple sites can be difficult and in the context of the present study it was

found to be challenging at many levels, due to the nature of the topic and the sensitivity of discussing it publicly in the conservative social environment of Saudi Arabia. The researcher faced challenges in this context both before and after gaining approval and starting the data collection.

First, an official letter was issued by the Cultural Bureau of the Saudi Embassy and sent by the researcher to the Ministry of Higher Education, applying for permission for the researcher to gain access to the university sites. A second letter from the Bureau (which took from 4-5 days) and the study supervisors (Appendixes 7 & 8) was issued in order to facilitate the conduct of the research. Attached to all official correspondence were copies of the information sheet (Appendixes 4 & 5) describing the research in general, setting out the research aim and objectives, and giving contact details of the researcher.

As to access, however, each university had different rules. Thus, to gain access to each campus and distribute the questionnaire, written or verbal approval had to be obtained from the administrative board of the university in question.

The major challenges which the researcher faced in seeking access approval such as;

The Communication with the universities proved difficult, especially as the researcher was in the UK, where telephone calls are expensive. Email communication was not always answered and some universities asked the researcher to come in person to discuss the issue. Time was limited, as the researcher had to spend most of the time in the UK and repeated travel to Saudi Arabia would be expensive and time-consuming. A related difficulty was the extended time that some universities took to reply to the researcher.

More, The sensitivity of the topic and the title of the research made several universities reluctant to participate. Some administration boards accused the researcher of being "liberal", "extremist" or "unwise" in undertaking such research in a conservative Muslim

country like Saudi Arabia; therefore, the researcher used her first name, not her surname, to avoid such challenges in the future.

As result two universities initially agreed to participate, but at the time set for data collection decided to withdraw from the study. Some universities asked the researcher to delete from the questionnaire certain questions, which they considered inappropriate and likely to affect the reputation of their universities when the study results were disseminated. However, the researcher declined to comply, because to do so would have excluded some questions, which are vital with the study.

In most of the universities, all of the administrative personnel handling the request for access were male, women being excluded from exercising such functions and from entering the premises where men work. As a result, the researcher had to use a male representative to communicate with these departments, making the process difficult to follow, due to limited access and uncertainty arising from communication through an intermediary.

3.10 Questionnaire

A self-completion questionnaire was used in order to be able to collect data from a large sample of students in a short time with the restricted resources available for this study. The questionnaire was completed anonymously because the topic is very sensitive in Saudi Arabia. Questionnaires have long been used in research to measure variables including knowledge, attitudes, intention, beliefs and behaviour. Thus, the use of this approach was considered suitable to facilitate the achievement of the study's aims and objectives. According to Saks and Allsop (2006, p. 180), "survey methods are valuable in examining comparisons and variations between groups, particularly in large populations".

The literature identifies several advantages for self-completed questionnaires, compared to interviews. Questionnaires that mainly use closed questions can be easy and quick to complete (Bowling, 2009) and that was beneficial for this research, as students might not have enough time for interview. In addition de Vaus, 2002, argue that socially desirable responses are less likely in questionnaire responses than interviews, due to less personal contact between the researcher and the study group. Compared to interviews, questionnaires can support the collection of a broader range of information regarding group studied (Burns & Grove, 2007). Furthermore there is little chance of misclassifying responses to closed questions during data entry and analysis (Bowling, 2009). According to (Polit & Beck, 2008) questionnaire data is easier to analyse than interview data.

On the other hand, survey questionnaire used in this research used closed ended format that has several advantages for example, easy and quick when answering and that was beneficial for this research, as students might not have enough time for interview. Also this kind of questions participants can answer in a way fitting the response, thus and the likelihood of misclassifying the answers can be prevented (Bowling, 2009).

At the same time, questionnaires have some disadvantages; such as the greater risks of missing data, incomplete questionnaires and low response rates and they normally produce data that is less rich than most interview transcripts. (Bryman, 2012)

Also, questionnaire considered not appropriate for certain age such as old people as they usually have visual problems or low education that considered as part of the limitations when collecting data from participants. It's argued that questionnaire tend to be inadequate to understand some forms of information, more important there is no way to tell how honest a participant is being.

It is possible to overcome some of these disadvantages by carful wording and structuring of the questionnaire to make it clearer for the participants. Also the present of the researcher at the site will help the participants to ask questions or clarification when they need it. Moreover, short questionnaire will encourage the completion of the questionnaire.

3.10.1 Questionnaire design

3.10.2 Building on previous questionnaire studies

The questionnaire (Appendix 2 & 3) was developed following a literature search to identify relevant content, with psychometrically tested tools being used where available. The study instrument was adapted from a core WHO questionnaire designed by John Cleland (Cleland, Ingham, & Stone, 2001) which has been used in several studies related to SRH in many countries. These include a study of norms, attitudes and sexual conduct in Iran (Farahani, 2008), a sexual and reproductive health survey in Turkey (Population Association & UNFPA, 2007) and a study conducted in Iran (Mohammadi et al., 2006). Each of these publications indicated that the scales had undergone psychometric testing, although only Farahani (2008) provided the details. In this case one Cronbach's alpha Score for the whole questionnaire was provided. This was 0.7, which Farahani considered adequate and meets the threshold of 0.70 to 0.95 recommended by Nunnally (1994).

Permission to use these instruments was requested from the main author of the core survey by John Cleland and colleagues (Cleland, Ingham, & Stone, 2001) and authors of other studies (Farahani, 2008), a sexual and reproductive health survey in Turkey (Population Association & UNFPA, 2007) and a study conducted in Iran (Mohammadi et al., 2006). Where it had not been reported in the publications, the authors were asked about their psychometric testing. Permissions were obtained from each main author but no detail about psychometric testing was received. (See section 3.10.2).

After reviewing the questions and scoring systems, I decided to continue to use these scales because they are the best examples available and they are within the scope of this study. However, they are not the best possible questionnaires and in the future we need to develop a better questionnaire that suits the culture and answers our research objectives and questions.

3.10.3 Adapting the pre-existing questionnaire scales

The instruments were modified to produce a self-administered questionnaire that was consistent with Saudi cultural norms while addressing the research aims and objectives. The content was laid out such that the wording, form and order of the questions minimised the risk of bias. It was translated into Arabic and back translated into English for checking, and then the Arabic version was piloted before administration to the study sample. Dixon and Maneesriwongul (2004) argue that participants will be better motivated to answer questions in their own language than in any other language; thus, it was considered crucial to translate the original instruments into the participants' language. Additionally, some changes were made to the original surveys to suit the Saudi context in terms of culture, religion, beliefs and politics, but no changes were made to the original scales used for scoring knowledge and attitudes.

The questionnaire, covering various aspects of SRH-related knowledge, attitudes and information-seeking behaviour, required approximately 30 minutes to complete. It was divided into ten sections (Box 3.1), each containing questions related to a particular variable. The majority of these items were in the form of closed-ended questions, which could be answered easily and quickly, taking into consideration the setting of the data collection and the limited time available to the student participants. Bryman (2012, p. 250)

notes “closed questions are typically preferable for a survey, because of the ease of asking questions and recording and processing answers”.

Moreover, this kind of question design facilitates the coding of responses, thus minimizing the probability of misclassification. Bryman (2012) argues that closed questions can enhance comparability as well as clarity of meaning. However, closed questions always entail a loss of spontaneity, where participants might otherwise offer interesting responses, which cannot be covered by fixed answers to closed questions.

Box 3.1 - Sections of the questionnaire

- Personal information such as type of university, school, level of study.
- Communication with parents.
- Activities and socializing.
- Sexual & reproductive health knowledge (validated scale).
- Personal attitudes towards sexuality & gender (validated scale).
- Contraception knowledge and usage (validated scale).
- Sexually transmitted diseases and HIV knowledge (validated scale).
- Information-seeking behaviour and needs.

3.11 Scoring

The original scales used in previous studies for scoring knowledge and attitudes were adapted for use in this study; no changes were made to the scoring, but the questions were modified to suit Saudi culture in terms of questions asked. The researcher deleted some questions for example, questions that asked about the sexual relationship without marriage or multiple sexual partners. So the total scores for each category were different from the original scales. The questionnaire covered several aspects of SRH which were scored as follows:

General SRH knowledge (questionnaire section 4) was assessed by asking the students to identify the accuracy of seven statements. Each correct answer scored 1, each incorrect answer or 'don't know' scored 0. For comparability with earlier studies, the answers that were considered to be correct were as defined by the scoring supplied by the authors of the original questionnaires (see Appendix 11). Thus the total scores ranged from 0 to 7. This total score was categorized into two groups (≤3 and ≥4). That is, subjects who had answered four or more statements correctly were considered to have good knowledge of SRH.

Knowledge of contraceptive methods (questionnaire section 6) was assessed through awareness of eleven different methods. A score of 1 was given for each method known, giving a total score range of 0-11. As the use of contraceptive methods was mostly expected to occur after marriage, we expected very little knowledge among the unmarried students. Hence the range of scores was categorized into three groups (≤3, 4-5 and ≥6). Study subjects who knew of six or more contraceptive methods were considered to have good knowledge.

Knowledge about STIs and HIV (questionnaire section 7) Students were asked several questions on STIs and HIV, such as whether they had heard of any of the five STIs listed (without any changes from original scales), modes of transmission, protection from infection, whether HIV is curable and the different signs and symptoms of STIs. A summary index that assigned a score of 1 for each correct answer and 0 for each incorrect or 'don't know' answer gave a total score in the range of 0-25. Although other STIs could have been added to the questionnaire, a disadvantage would have been to reduce the comparability with earlier studies. For comparability, the answers that were considered to be correct were as defined by the scoring supplied by the authors of the original questionnaires. (Appendix 11)

As STIs and HIV are not very prevalent in Saudi Arabia, we expected little knowledge of them among the respondents. Hence the range of scores was categorized into three groups (≤5, 6-12 and ≥13). Subjects scoring 13 or more were considered to have good knowledge of STDs and HIV.

Total knowledge score (SRH + contraceptives + STIs/HIV). The total score was categorized into two groups (≤17 and >17), based on the mean and median scores (17.46 and 17). That is, subjects who scored above 17 were considered to have a good overall level of knowledge.

Attitudes toward premarital sex, sexuality & gender (questionnaire section 5) Respondents were asked to assess the social acceptability within the community of certain sexual attitudes, by choosing among four statements, ranging from 'very acceptable' to 'very unacceptable'. Their personal attitudes to some sexual norms and attitudes were tested by their responses to ten statements, ranging from 'completely agree' to 'completely disagree'. These responses were converted to scores on four-point Likert scales, ranging from 1 for extremely conservative views to 4 for extremely liberal views.

3.12 Reliability and validity

3.12.1 content validity

Much of the content of the questionnaire in this study was content used in previous studies (Farahani, 2008), a sexual and reproductive health survey in Turkey (Population Association & UNFPA, 2007) and a study conducted in Iran (Mohammadi et al., 2006). Arguably, the authors' claims of earlier validation and the fact of peer-reviewed publication demonstrate reasonable content validity was achieved in these studies. However, the authors of these studies did not provide detailed information on the steps that had been taken to validate their survey and no detailed information was reported in the

papers, so this issue had been considered as one of the study limitations (see Sections 3.16 and 7.3).

The questionnaires needed adaption for the Saudi context and translation into Arabic, so additional efforts to check content validity were made. Thus, over 15 experts and specialized personnel in the area of SRH (such as public health specialists, obstetricians and gynaecologists) reviewed the study instrument for content validity. They were asked to evaluate critically its overall clarity and content. They were content about it and only recommended some changes in wording.

As the first language in Saudi Arabia is Arabic, it was also necessary to translate the questionnaire into Arabic to aid the response rate and to boost the validity of the findings. Two professional translators therefore translated the questionnaire, which was then reviewed by a third bilingual professional with experience in SRH. To correct any discrepancies between source and target language versions, the instrument was back translated between a bilingual professional translator and the researcher, thus validating the content of the final target language version. Finally, a pilot study with female university students from Saudi Arabia checked the clarity and acceptability of the questionnaire.

3.12.2 External validity

It was also necessary to ensure the external validity of the study, which can be defined as the degree to which the result of any study can be generalized to other similar populations. The researcher therefore attempted to establish some consistency among the sample by applying certain criteria. Thus, all participants were Saudi students enrolled in an undergraduate or postgraduate programme at one of the 13 female-only university campuses in Riyadh city. This ensured some degree of homogeneity within the study sample, helping to improve external validity.

3.12.3 Reliability, responses to sensitive questions

The reliability of the questionnaire responses was another vital consideration, so several measures were taken to improve this: first, the researcher was present at each study site to answer any queries, but was careful not to impose on the participants her views or attitudes regarding the topic; second, the questionnaire items were carefully worded using clear and easily understood language.

Finally, confidentiality and the impact of social desirability on the validity of the research is very important consideration when conducting a survey questionnaire. Responses to sensitive questions or topics are often biased towards what respondents see as socially desirable (van de Mortel, 2008). To minimise this effect, several measures were taken to protect confidentiality: the questionnaire was self-administered, participants were not asked to provide any identification and each completed questionnaire was placed in a sealed envelope.

3.13 Piloting

Conducting a pilot study is an important step in any research; van de Mortel (2008) warns that not to do so entails risk, while Teijlingen and Hundley (2001) stress the fundamental significance to any research of piloting the research instruments. In this study the use of a pilot study helped to improve the clarity and check the acceptability of the questionnaire. It also tested the feasibility of data collection.

For the present research, a pilot study was conducted in 2012 on a small sample of students (n=25) to determine the feasibility of the main study and to identify misinterpretations and items that were frequently missed out or elicited partial responses. After obtaining approval from a state university, the researcher distributed 25 questionnaires and estimated the time needed for their completion, while observing whether the students experienced

difficulty in understanding the wording of the items. Additionally, the students were asked to give written comments on the length of the questionnaire, its language and any obstacles to their understanding of any items.

It was found that the questionnaire took approximately 20-30 minutes to complete. The participants raised several important issues for example; some of the medical terminology wasn't clear, the use of abbreviations for the names of STIs and some language issues. In response to this feedback the researcher edited the questionnaire to make the instructions clearer by adding some statements to give a wider understanding and made several other recommended changes mostly were related to the language modifications to certain items to make them easier to understand.

When the issue of their willingness to participate in the gathering of qualitative data by such means as focus group discussions or interviews was raised with the students participating in the pilot study, the majority said that they would not be willing to do so. The main reasons given were the topic and its sensitivity, plus the fear of stigmatisation by others if young women were seen to participate in a study addressing such a topic.

3.14 Data collection

Data collection began in July 2013, when the researcher travelled to Saudi Arabia and contacted the universities in Riyadh, then visited them to start distributing the questionnaires based on their positive responses to requests for access and approval for the research.

The first batch of data was collected from one private and two state universities. Each participant was first provided with an information sheet explaining the purpose of the study and stating that the information that they provided would be kept confidential. No names or university IDs were required. Moreover, participants were assured that they had the

right to withdraw from the study at any time or to abstain from responding to any questions with which they were not comfortable or which they found inappropriate. It was stated that the researcher would be present at all study sites and available to provide verbal information and explanations to the participants. The researcher explained that agreeing to answer the questionnaire would be taken to imply informed consent (Polit & Beck, 2006). Polit and Hungler (1999) state that if a participant completes a questionnaire, this means that consent has been attained; thus, a completed questionnaire was regarded as consent to participation in the study.

When initial consent had been obtained from the participants, each was given a questionnaire and an envelope into which she was asked to seal the anonymous questionnaire when she had finished it, to maintain confidentiality, all the questionnaires were kept with researcher all the time in trolley bag during the time of distributing the questionnaires. The researcher recruited students every day between 8:00 am and 4:00 pm in university waiting rooms, canteens, libraries and while they waited for their cars. The researcher waited nearby, at a discreet distance, for participants to complete the questionnaires, then collected the sealed envelope from each participant. At the end of each working day the researcher returned home and opened the envelopes. Completed questionnaires were checked and minor omissions corrected (e.g. forgetting to tick the box saying whether the respondent studied at a private or governmental university). Then all questionnaire data were entered into SPSS. Afterwards, the questionnaires were sealed in a large envelope and stored in a secure filing cabinet drawer, before the researcher carried these to the UK and again stored them in a locked cupboard. Since the questionnaires were completed anonymously, there was no feasible way to link a particular questionnaire response back to any individual. The names of the universities were also kept confidential.

3.15 Data analysis

3.15.1 Quantitative analysis

Data were entered and analysed using the SPSS PC+ version 21.0 statistical software. The selection of statistical tests depends in many factors, such as sample size, sampling method, level of measurement and on whether the variables to be measured in the sample are normally distributed in the population or not (Parahoo, 2006). The parametric tests had been selected because the variables in this research were normally distributed (Watson et al, 2006).

Munro (1997) explains the differences between parametric and non-parametric tests. The main difference is the guesses about the population data before the parametric test can be performed. Thus, for t-tests and analysis of variance (ANOVA) it is assumed that the entire variable is normally distributed in the population and that the variance is similar at different levels of the variable, as shown in this research. While, the Non-parametric techniques have quite few assumptions that must be encountered before they can be used.

Descriptive statistics (mean, standard deviation, frequencies and percentages) were used to describe the numerical and categorical outcome variables. Chi-squared test was used to observe the association between categorical study variables (type of university, level of study, area of residence, marital status, mother's educational status, father's educational status, degree of religiosity, ability to discuss sex with one's parents, responses to the seven questions related to participants' habits, and responses to the five questions on attitudes towards seeking knowledge). Categorical outcome variables: general SRH scores ($\leq$3 & $\geq$4), knowledge scores on contraceptives ($\leq$3, 4-5 & $\geq$6), knowledge of STD/HIV scores ($\leq$5, 6-12, $\geq$13) and total knowledge score ($\leq$17 & >17). Student's t-test for independent samples and one-way analysis of variance (ANOVA) were used to compare

the mean values of the numerical study variable of age across the categorical outcome variables with two categories and more than two categories. Student's t-test for independent samples and one-way ANOVA were also used to compare the mean values of the numerical outcome variable of attitude scores across the categorical study variables with two categories and more than two categories. The data were found to satisfy the assumptions of all statistical tests (chi-squared, t-test and ANOVA) used in this analysis. Binary multiple logistic regression was used to identify the independent variables associated with the four binary outcome variables (poor knowledge of SRH, of contraceptives, of STIs/HIV and total knowledge). Adjusted odds ratios were obtained to report the independent statistical association between the study variables and the outcome variables. A p-value of <0.05 and 95% confidence intervals were used to report the statistical significance and precision of the results.

Married, divorced, separated and widowed women were all placed under one category (married) for the purpose of data analysis in order to facilitate the comparison between those who were currently single and those who were or had been married. Similarly, the categories of single and engaged were combined to facilitate this basic comparison and because an engaged woman is considered by Saudi society to be still single.

3.15.2 Qualitative analysis from open-ended questions

The aims of the open-ended questions included in the questionnaire were to explore students' SRH needs and problems and to give them a wider platform to express themselves and their views. The responses were subjected to content analysis; in order to identify significant patterns and themes, note that the responses to this part were small number. Dixon et al (2008) consider that content analysis is commonly used in the social sciences and has been developed to transform qualitative data into more quantitative forms within frameworks. Polit and Hungler (1997) emphasize that content analysis of the data enables the investigator to classify themes

and patterns while; Silverman (2006) mentioned that in content analysis, researchers establish a set of categories and then count the number of instance that fall into each category.

In this research, the text of all responses was first translated into English, and then each translated text was read independently to search for related words and themes, which were then categorised according to the themes that emerged. Four themes were identified and extracts of responses are presented for analysis under each of these headings in Chapter 4, section 4.13. Dixon (2008) states that content analysis synthesis the study results by offering a systemic way to count and categorize study themes.

3.16 Study Design Limitations

This research has limitations which should be acknowledged. All participants were female university students; therefore, the results may only reflect and be generalizable to university students, not to all Saudi women or to females who have not attended university. The results may not be generalizable to female university students in other regions, since the data collection was confined to one large city with several women's universities. Conducting the research in women's universities only, away from the male gaze in a male dominant society, was a pragmatic choice. (See discussion of strengths and weaknesses in section 7.3).

Further, a significant proportion of the students who participated in this study were medical students. That might affect the results as medical students might have better SRH knowledge than other students. Furthermore, the sample size was small.

Limiting the data to that collected by means of such a questionnaire meant that it was not possible to engage participants in in-depth focus group discussions or interviews, which might have provided a deeper understanding of their SRH knowledge, information-seeking behaviour and attitudes. This lack of depth of understanding constitutes an important

limitation of this study, although focus group data may have been affected by social desirability bias (van de Mortel, 2008) in this conservative society.

Also selection bias is another limitation should be mentioned in this study, which can be defined as the type of error that occurs when the researcher chooses who is going to be studied. Usually it is associated with research where the selection of participants is not random (Hennekens, 1987). This matter arising from decisions made by the researcher was a possibility: such as choices of where and when to collect data on university campuses and whether to approach a particular student if, for example, she looked in a hurry or in some other way unapproachable.

3.17 Study strengths

In a country where sexual and reproductive health is a taboo topic and there is no legitimate avenue for women to access information about SRH-related matters, research such as this serves a dual purpose. First, it identifies the information required by women. Secondly, it provides evidence of these requirements, as well as of women's level of knowledge and information-seeking behaviour.

Unfortunately, it appears that no empirical studies have been conducted to establish Saudi women's sexual and reproductive health requirements and to gauge their knowledge with regard to SRH. The present study seeks to explore the SRH needs, problems and awareness of young Saudi women, from the perspective of the participants themselves. This is considered to be a unique study, in that no previous studies carried out in Saudi Arabia focus directly on women's SRH. Another strength for this study is the instrument translated to Arabic then was back translated between a bilingual professional translator and the researcher, thus validating the content of the final target language version.

3.18 Summary

This chapter has focused on the research design, research questions and hypotheses. The psychometric research tool was described and its reliability and validity were discussed. The chapter has also described the sampling techniques, explained the calculation of sample size and considered the external and internal validity of the study. Additionally, ethical issues, data collection, data analysis and some limitations of the study were discussed. The next chapter presents the finding of this study.

Chapter 4

Findings of the study

4.1 Introduction

This chapter presents an analysis of the results of the survey of SRH knowledge and attitudes among female university students in Riyadh. It assesses the extent of variation in their knowledge of general SRH, contraception and STIs, including HIV, and in their attitudes to SRH, and explores the demographic and social factors that may be associated with this variation. After a brief account of response rates, there are four main sections. Section 4.3 deals with the demographic characteristics of the respondents, including their age, marital status and education, then section 4.4 considers their social characteristics, such as religiosity, media exposure, social activities and communication with their parents. Section 4.5 presents descriptive findings related to each of the validated knowledge scales and finally, section 4.6 presents results regarding student's attitudes to relationships and virginity.

4.2 Response rate and non-response

As Figure 4.1 shows, the researcher distributed 462 questionnaires to students at four study sites and received 365 completed questionnaires, resulting in a total response rate of 89%. Twenty-seven uncompleted questionnaires were collected, while 25 students took questionnaires but did not return them. A further 45 failed to complete the questionnaire or declined to participate in the study for a variety of reasons, which can be summarized under three headings: topic, time and interest. First, 20 students declined to complete the questionnaire having read the information sheet, having been handed the questionnaire and having seen the title of the survey, stating that they were unwilling to participate in such a

study. Second, 17 students said that they either could not complete the questionnaire or could not participate at all because they needed to go to their lectures or leave the university at the time the researcher approached them. Finally, eight students said that they were not interested in participating in any survey.[2]

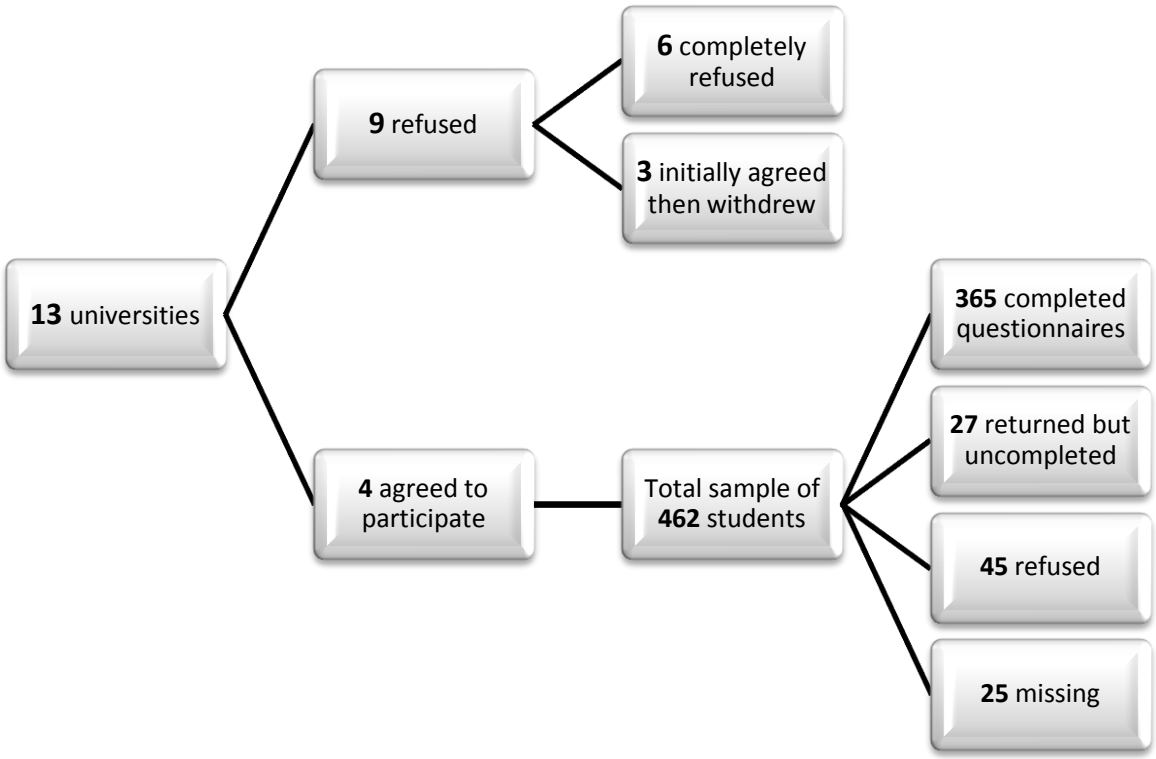

Figure 4.1: Data collection process

[2] Details of the process of data collection are given in Chapter 3.

4.3 Demographic characteristics

This section describes the characteristics of the study sample. Each participant was asked demographic questions on her age, type of university attended, level of study, academic discipline, area of residency, marital status and her mother's and father's level of education. (See translated questionnaire in Appendix 2).

The frequency and percentage of responses to the demographic questions are presented in Table 4.1 and the bullet points below summarise these results:

- The average age of respondents was 22.5 years (SD = 3.9 years), with a range of 18 to 39 years. Seven percent of participants did not respond to this question.
- Just over a third of respondents attended private universities, while two thirds attended state ones, reflecting the general situation in the country, where more students attend state universities than private ones.
- A strong majority of respondents (90%) were studying for undergraduate degrees.
- The Academic Discipline variable was insufficiently discriminating because too few options had been provided for respondents to select. Consequently 40% of responses fell into the 'Other' category. This variable was therefore not used in further analyses.
- Three quarters of participants lived in east Riyadh (40%) or north Riyadh (34%), with a further 11% from south Riyadh, 8% from west Riyadh and only 7% from outside the capital.
- Most respondents (83.6%) were single. The observation that they tended to be young and predominantly single reflects the fact that age at marriage has been rising in the past few years, as indicated in Chapter 1.

- The mothers of participants had varied educational backgrounds: 12% had had no education, 20% had graduated from primary school, 13% from intermediate school, 25% from high school and 30% from university.
- Unsurprisingly, given the history of education in the country, their fathers had had a somewhat higher level of education overall, the equivalent figures being lower for all levels except university, where almost half of fathers had completed a four-year course.

Table 4.1: Frequency and percentage of demographic characteristics

Demographic characteristics			
Age (years): Mean (SD), [min, max]	22.5 (3.9) [18, 39] (Missing = 27)		
		Frequency (N=365)	**%**[3]
Type of university	Private	128	35
	State	237	65
Level of study	Undergraduate	322	90
	Postgraduate	34	10
	Missing	9	2.5
Academic discipline	Medicine	69	19
	Religious studies	9	2
	Science	57	16
	Humanities	52	14
	Arts	32	9
	Other	146	40
Area of residence	North Riyadh	126	34
	South Riyadh	39	11
	West Riyadh	30	8
	East Riyadh	144	40
	Outside Riyadh	26	7
Marital status	Single	305	84
	Married	60	16
Mother's education	No education	45	12
	Primary school	73	20
	Intermediate	47	13
	High School	91	25
	University	107	30
Father's education	No Education	15	4
	Primary school	43	12
	Intermediate	42	12
	High School	83	23
	University	179	49

4.4 Social and cultural characteristics and activities

The following subsections present comprehensive descriptions of some social and cultural characteristics of the participants, namely self-rated religiosity, self-rated cultural

[3] Where the percentages shown do not add to exactly 100%, this is due to rounding. This applies to the rest of the tables.

conformity, personal activities or behaviour and exposure to media, and communication with parents.

4.4.1 Religious and cultural devotion

Islam is the religion of Saudi Arabia and all respondents stated that they were Muslim. However, as Table 4.2 shows, only a fifth described themselves as 'religious' and very few as 'highly religious', although more than two thirds considered themselves 'somewhat religious' and only 8.5% said that they were 'not at all religious'. When asked how traditional they considered themselves, respondents gave broadly similar answers, with almost two thirds choosing 'somewhat traditional'. These data reflect the strong influence of religion on Saudi culture and society.

Table 4.2: Participants by religious and cultural devotion

Religiosity and cultural devotion		Frequency	%
How religious do you consider yourself?	Highly religious	4	1.1
	Religious	74	20.3
	Somewhat religious	255	70.1
	Not at all religious	31	8.5
	Missing	1	0.3
How traditional do you consider yourself?	Highly traditional	12	3.3
	Traditional	42	11.5
	Somewhat traditional	233	63.8
	Not at all traditional	77	21.1
	Missing	1	0.3

4.4.2 Media exposure, activities and behaviour

Table 4.3 lists responses to seven questions regarding respondents' activities and behaviour, namely watching satellite TV, smoking, drinking alcohol and using illegal drugs, and their exposure to sexually explicit material in books or films.

- Almost all of the students (95%) had access to satellite television, while similar percentages claimed not to smoke tobacco, drink alcohol or use illegal drugs.

- 40% said that they had never seen photographs or books illustrating sexual activity, 30% had done so once or twice, and a further 30% had done so more often. As to films depicting sex, more than half had never seen one, a quarter had done so once or twice and only a fifth had done so more often. It is notable that the Saudi government no longer controls access to satellite television, but it does prevent access to pornographic websites and have control over the internet.

Table 4.3: Frequency counts and percentages of participants' media exposure and activities

Media exposure and activities		Frequency	%
Do you watch satellite TV?	Yes	345	95
	No	18	5
	Missing	2	0.5
Do you smoke cigarettes?	Yes	23	6
	No	341	94
	Missing	1	0.3
Do you smoke sheesha?	Yes	31	8
	No	332	92
	Missing	2	0.5
Do you drink alcohol?	Yes	7	2
	No	356	98
	Missing	2	0.3
Do you use illegal drugs?	Yes	4	1
	No	359	99
	Missing	2	0.5
How often have you had occasion to see photographs or books illustrating sexual activity?	Never	144	40
	Once or twice	111	31
	3 or 4 times	35	10
	5 times or more	73	20
	Missing	2	0.5
How often have you seen films that illustrate sexual activity?	Never	188	52
	Once or twice	96	26
	3 or 4 times	50	14
	5 times or more	30	8
	Missing	1	0.5

4.4.3 Communication with parents

The survey next investigated the degree of ease with which participants communicated with their parents on sensitive topics, the results being listed in Table 4.4.

- When the students were asked how much they had learned from their parents in regard to various SRH topics, around 40% replied that they had learned nothing; roughly the same number said 'some' and only about 15% said that they had learned 'a lot'. The topics on which most had been learned were body changes and menstruation (although ten students did not answer the menstruation question), whereas the sexual and reproductive systems of men and women, and sexual relationships between them received the most strongly negative responses.
- Consistently with these results, two thirds of respondents stated that they were unable to discuss sex-related matters with their parents.

Table 4.4: Communication with parents on issues related to sexual health

Areas of communication			Frequency	Percentage
How much did you learn from your parents about:	**Body changes?**	Nothing	94	25.8
		Some	188	51.5
		A lot	81	22.2
		Missing	3	0.8
	Menstruation?	Nothing	41	11.2
		Some	184	50.4
		A lot	130	35.6
		Missing	10	2.7
	The sexual and reproductive systems of men and women?	Nothing	204	55.9
		Some	131	35.9
		A lot	29	7.9
		Missing	1	0.3
	Contraception?	Nothing	183	50.1
		Some	132	36.2
		A lot	48	13.2
		Missing	2	0.5
	Sexual relationships between men and women?	Nothing	220	60.3
		Some	128	35.1
		A lot	16	4.4
		Missing	1	0.3
I can discuss sex related matters with my parents		Strongly disagree	100	27
		Disagree	138	38
		Agree	115	32
		Strongly agree	10	3
		Missing	2	0.5

4.5 Descriptive information and frequencies for pre-validated knowledge scales

This section presents responses to questions on the pre-validated scales of general SRH knowledge, contraceptive knowledge and HIV/STI knowledge as frequencies and percentages, as well as the total knowledge level for each category. These results are used to answer the research questions and test the hypotheses in Chapter 5, sections 5.3 to 5.6.

4.5.1 General SRH knowledge

As Table 4.8 shows, SRH knowledge varied widely among participants, with many holding serious misconceptions. Almost three quarters knew that a woman can conceive when she first has intercourse, but only a half and a third respectively knew that a condom can protect against pregnancy and against HIV. Similarly, only a third knew that the oral contraceptive was an effective method. Interestingly, more than two thirds falsely believed that a woman could conceive through kissing or touching, while very few were aware that conception is most likely during midcycle.

General SRH knowledge level among study participants was examined by type of university, level of study and marital status. Results are presented in Tables 4.5, 4.6 and 4.7 respectively. Students from state universities had slightly better knowledge than those at private ones, but levels were very low in both cases, with at total of 84.1% of participants having poor knowledge. Undergraduate students were much more likely than graduates to have a low knowledge level, with the overall percentage of poorly informed participants again being 84%. Unsurprisingly, single students were also more likely to have low knowledge than married ones.

Table 4.5: Type of university and general SRH knowledge

Type of university		SRH knowledge level	
		≤3 (poor)	≥4 (good)
Private	Count	112	16
	% Within type of university	87.5%	12.5%
State	Count	195	42
	% Within type of university	82.3%	17.7%
Total	Count	307	58
	% Within type of university	84.1%	15.9%

Table 4.6: Level of study and general SRH knowledge

Level of study		SRH knowledge level	
		≤3 (poor)	≥4 (Good)
Undergraduate	Count	276	46
	% Within level of study	85.7%	14.3%
Postgraduate	Count	23	11
	% Within level of study	67.6%	32.4%
Total	Count	299	57
	% Within level of study	84.0%	16.0%

Table 4.7: Marital status and general SRH knowledge

What is your current marital status?		SRH knowledge level	
		≤3 (poor)	≥4 (good)
Single	Count	265	40
	% Within marital status	86.9%	13.1%
Married	Count	42	18
	% Within marital status	70.0%	30.0%
Total	Count	307	58
	% Within marital status	84.1%	15.9%

Table 4.8: Distribution of responses to statements about general SRH knowledge

SRH Statement		Frequency	Percentage
A woman can get pregnant the very first time that she has sexual intercourse	True	263	72.1
	False	45	12.3
	Don't know	54	14.8
	Missing	3	0.8
Condoms are an effective method of protecting against HIV	True	122	33.4
	False	102	27.9
	Don't know	134	36.7
	Missing	7	1.9
Condoms are an effective method of preventing pregnancy	True	179	49.0
	False	66	18.1
	Don't know	108	29.6
	Missing	12	3.3
The oral pill is an effective method of preventing pregnancy	True	120	32.9
	False	126	34.5
	Don't know	109	29.9
	Missing	10	2.7
Women can get pregnant through kissing or touching	True	255	69.9
	False	67	18.4
	Don't know	35	9.6
	Missing	8	2.2
Withdrawal is an effective method of preventing pregnancy	True	168	46.0
	False	53	14.5
	Don't know	135	37.0
	Missing	9	2.5
Within the menstrual cycle, there is a period during which there is a high possibility of pregnancy	True	7	1.9
	False	320	87.7
	Don't know	31	8.5
	Missing	7	1.9

4.5.2 Contraceptive knowledge

In the next section, participants were asked about their familiarity with various methods of contraception, which was generally high, the most notable exceptions being for female and male sterilization, with which only 15.6% and 11.2% respectively claimed to be familiar. Fewer than half of respondents also said that they knew about implants or the diaphragm, foam, jelly and suppositories, as Table 4.12 shows. The most familiar methods were the pill (94.2%) and the IUD (88.5%). It should be noted that many of these results were

affected by high numbers of missing data, especially in the cases of sterilization and lactation amenorrhea. Only 10.7% of respondents stated that they were using contraception at the time of the study. When those who were not using contraception were asked about their reasons for not doing so, 6.6% cited religious reasons, 5.2% fear of side effects, 4.7% a lack of knowledge and 4.1% the refusal of their husbands to allow them to do so. Participants who did use contraception were asked where they had obtained information on the methods they used. Doctors were identified as the source by 8.8%, followed by the internet at 6.6%, then friends at 6%.

Tables 4.9 to 4.11 show how participants' level of knowledge of contraception varied with their demographic characteristics. As was expected, the level of knowledge among married students was higher than among single ones, consistent with the fact that married students were more likely to be using contraceptives. Undergraduates were also less knowledgeable than postgraduate students. An interesting finding was that students at private universities had better knowledge than those at state universities, as measured by the proportion having scores of six or more (52.3% and 39.7% respectively).

Table 4.9: Type of university and knowledge of contraception methods

TYPE OF UNIVERSITY		Contraception knowledge level		
		≤3 (poor)	4 to 5 (fair)	≥6 (good)
Private	Count	28	33	67
	% Within type of university	21.9%	25.8%	52.3%
State	Count	64	79	94
	% Within type of university	27.0%	33.3%	39.7%
Total	Count	92	112	161
	% Within type of university	25.2%	30.7%	44.1%

Table 4.10: Level of study and knowledge of contraception methods

Level of study		Contraception knowledge level		
		≤3 (poor)	4 to 5 (fair)	≥6 (Good)
Undergraduate	Count	86	106	130
	% Within level of study	26.7%	32.9%	40.4%
Postgraduate	Count	1	4	29
	% Within level of study	2.9%	11.8%	85.3%
Total	Count	87	110	159
	% Within level of study	24.4%	30.9%	44.7%

Table 4.11: Marital status and knowledge of contraception methods

Marital status		Contraception knowledge level		
		≤3 (Poor)	4 to 5 (fair)	≥6 (Good)
Single	Count	86	104	115
	% Within marital status	28.2%	34.1%	37.7%
Married	Count	6	8	46
	% Within marital status	10.0%	13.3%	76.7%
Total	Count	92	112	161
	% Within marital status	25.2%	30.7%	44.1%

Table 4.12: Distribution of knowledge of different kinds of contraception

Methods		Frequency	Percent
Female sterilization	Yes	57	15.6
	No	222	60.8
	Missing	86	23.6
Pill	Yes	344	94.2
	No	12	3.3
	Missing	9	2.5
Intrauterine device (IUD)	Yes	323	88.5
	No	29	7.9
	Missing	13	3.6
Implant	Yes	176	48.2
	No	131	35.9
	Missing	58	15.9
Lactation amenorrhea method	Yes	67	18.4
	No	213	58.4
	Missing	85	23.3
Injection	Yes	271	74.2
	No	59	16.2
	Missing	35	9.6
Condom	Yes	225	61.6
	No	102	27.9
	Missing	38	10.4
Male sterilization (Vasectomy)	Yes	41	11.2
	No	241	66.0
	Missing	83	22.7
Diaphragm, Foam, Jelly, Suppository	Yes	157	43.0
	No	152	41.6
	Missing	56	15.3
Rhythm or Calendar Method	Yes	201	55.1
	No	109	29.9
	Missing	55	15.1

4.5.3 Knowledge of HIV and STIs

Knowledge of STIs and HIV was mixed, with well over half of participants able to identify four of the most common types of STI (Table 4.16). When asked to name the different types of STI they knew, 95.9% identified HIV, followed by syphilis, gonorrhoea and herpes, all with half to two thirds of the sample mentioning them. However, only a quarter knew of chlamydia. Only 5.5% reported knowing none of the STIs.

Sources of information on HIV and STIs varied, the most often reported source being television at 72.9%, followed by newspapers (49%), school (40%) and again friends (37.3%); only 17.3% reported learning about STIs from health professionals and clinics.

Familiarity with the signs and symptoms of STIs was moderate: more than a third of respondents did not recognise or know any symptoms and only 5.8% believed that a person with an STI or HIV could have no symptoms at all. On the other hand, the majority of participants were able to identify the different modes of transmission, with more than three quarters naming sexual intercourse with a sex worker or with many partners. Interestingly, 20% thought that STIs/HIV could be transmitted by kissing and around the same number believed that HIV could be transmitted through mosquito bites or by sharing food.

I should acknowledge that the measure of STI knowledge used in this thesis might be a little dated and it omits some STIs (see section 3.11). This should be taken into consideration in the future and when designing any new scale or similar scale.

The analyses in Tables 4.13 to 4.15 show that a poor level of knowledge was more likely among participants at private universities, among undergraduates and among those who had never been married.

Table 4.13: Type of university and STI/ HIV knowledge

Type of university		STI/HIV knowledge level		
		≤5 (Poor)	6 to 12 (fair)	≥13 (Good)
Private	Count	41	42	45
	% Within type of university	32.0%	32.8%	35.2%
State	Count	60	82	95
	% Within type of university	25.3%	34.6%	40.1%
Total	Count	101	124	140
	% Within type of university	27.7%	34.0%	38.4%

Table 4.14: Level of study and STI/ HIV Knowledge Level

Level of study		STI/HIV knowledge level		
		≤5 (poor)	6 to 12 (fair)	≥13(good)
Undergraduate	Count	93	110	119
	% Within level of study	28.9%	34.2%	37.0%
Postgraduate	Count	5	9	20
	% Within level of study	14.7%	26.5%	58.8%
Total	Count	98	119	139
	% Within level of study	27.5%	33.4%	39.0%

Table 4.15: Marital status and STI/HIV knowledge

Marital status		STI/HIV Knowledge Level		
		≤5 (poor)	6 to 12 (fair)	≥13 (Good)
Single	Count	87	110	108
	% Within marital status	28.5%	36.1%	35.4%
Married	Count	14	14	32
	% Within marital status	23.3%	23.3%	53.3%
Total	Count	101	124	140
	% Within marital status	27.7%	34.0%	38.4%

Table 4.16: Distribution of knowledge of different kinds of STIs

STIs		Frequency	Percent
Gonorrhoea	Yes	228	62.5
	No	95	26.0
	Missing	42	11.5
Syphilis	Yes	249	68.2
	No	79	21.6
	Missing	37	10.1
Chlamydia	Yes	91	24.9
	No	206	56.4
	Missing	68	18.6
HIV/AIDS	Yes	350	95.9
	No	5	1.4
	Missing	10	2.7
Genital herpes/sore	Yes	211	57.8
	No	106	29.0
	Missing	48	13.2
Don't know any	Yes	20	5.5
	No	49	13.4
	Missing	296	81.1

4.6 Attitudes to premarital sex and sexual relationships

The next set of questions sought to elicit the perceptions of Saudi female students of social norms regarding sexuality and gender, as well as their own views on these topics, bearing in mind their sensitivity within Saudi culture and the restrictions applied to women in terms of socialisation with males. Table 4.17 therefore reports the responses to 14 questions and statements about the social acceptability of premarital sex, relationships and virginity.

Table 4.17: Distribution of views on sex and social acceptability

How socially acceptable is it these days if:	Strongly acceptable	Acceptable	Unacceptable	Very unacceptable
Unmarried young people socialize with the opposite sex?	7.9	24.7	30.4	36.4
Unmarried females have boyfriends?	5.5	24.9	28.5	40.3
Unmarried females have physical intimacy such as touching, kissing and hugging the opposite sex?	3.8	6.6	23.8	64.9
Unmarried females have sex?	2.5	3.6	13.4	79.7
What is your personal opinion of the following statements?	Strongly agree	Agree	Disagree	Strongly disagree
It is acceptable for young people to socialize with the opposite sex.	7.7	34.5	36.4	20.5
It is all right for unmarried boys to have girlfriends.	4.1	30.1	34.8	30.1
It is all right for unmarried girls to have boyfriends.	4.1	27.1	36.2	30.7
It is not all right for boys and girls to have physical intimacy, such as touching, kissing and hugging the opposite sex.	34.8	15.3	16.7	32.6
It is wrong for unmarried boys and girls to have sexual intercourse, even if they love each other.	54.0	12.9	10.1	21.9
Girls should remain virgins until they marry.	82.7	8.8	2.2	4.1
It is all right for boys and girls to have sex before marriage if they use methods to prevent pregnancy.	3.0	2.7	13.7	79.7
Virginity is a girl's most valuable possession.	73.4	14.2	7.1	4.4
My religious and cultural beliefs are against premarital sex.	72.6	15.9	4.4	3.8
It is okay for boys to have sex before marriage but not so for girls.	4.1	5.2	17.3	72.1

Participants were first asked how socially acceptable they believed it to be for young unmarried people to socialise with the opposite sex and for unmarried girls to have boyfriends. In both cases, less than a third saw it as socially acceptable, while more than a third replied that it was very unacceptable. Unsurprisingly, social judgements against physical contact were stronger: a quarter thought it socially unacceptable and two thirds very unacceptable for unmarried females to engage in physical intimacy, with even stronger negative responses as to the social acceptability of them having sex.

The second part of the table shows responses to items concerning the participants' own opinions of the acceptability of premarital relationships and contact. The overall pattern that emerges is of broad agreement with the above social norms, but these personal opinions were somewhat less strongly held. For example, respondents were slightly more likely to agree that it was personally acceptable to them for young people to socialise with the opposite sex and for girls to have boyfriends than they were to see these as socially acceptable, with those who disagreed being less likely to do so strongly. Personal judgements of physical intimacy were very much out of step with perceptions of the social unacceptability of touching, kissing or hugging the opposite sex, being evenly distributed between those who agreed and disagreed. A possible explanation is offered at the end of this section. On questions of moral equality, respondents were generally unwilling to grant males more sexual freedom than females, so responses concerning unmarried boys having girlfriends were almost identical to those regarding unmarried girls having boyfriends, while there was a strong rejection of the proposition that it was acceptable for boys, but not girls, to have sex before marriage. On direct questions concerning premarital intercourse, personal opinions were very much in line with perceived social norms. Almost 80% said that it was socially unacceptable for unmarried females to have sex, with most of these seeing it as very unacceptable, and these responses were closely echoed by respondents'

personal opinions in favour of virginity until marriage and against premarital sex, even if contraception was used.

Responses to one item were apparently somewhat contradictory: when asked whether it was "wrong for unmarried boys and girls to have sexual intercourse, even if they love each other", a third disagreed, while only a little more than half strongly agreed. The large discrepancy between these figures and those in response to the suggestion that it was "all right for boys and girls to have sex before marriage if they use methods to prevent pregnancy" requires explanation. Perhaps the word 'love' biased respondents towards a tolerant view, or perhaps the double negative in saying that one disagreed that something was wrong explains the inconsistency. This second explanation might also apply to the apparent relative personal tolerance of physical intimacy, which, as noted above, contrasted with its perceived social unacceptability.

4.7 Summary

This chapter has presented the quantitative results of the questionnaire survey. The next examines the findings in relation to the research questions and hypotheses.

Chapter 5

Answers to research questions and hypotheses

This chapter examines each of the research questions and hypotheses in turn; presenting the results of appropriately selected statistical analyses. Each of the first eleven sections presents the answer to a research question and its related hypotheses, followed where relevant by the results of multiple logistic regression (MLR) related to that section. Of the eleven research questions,[4] RQ1-RQ8 relate to respondents' knowledge, RQ9 and RQ10 to their attitudes and RQ11 to their information-seeking behaviour. The chapter then turns to the responses to the open-ended questions included in the questionnaire.

Note that the scoring system has been adapted from previous studies and slightly modified for this study. The pre-validated scales were used to measure different areas of SRH knowledge listed in Chapter 4, section 4.12. Responses to the questions on these scales were scored in line with the scoring used in earlier studies (Cleland et al., 2001) (Mohammadi et al., 2006) to allow comparison of the findings of this study with those of earlier ones.

For research questions 1 to 10, the two-sample t-test, one-way analysis of variance and the chi-squared test of independence were conducted as applicable. A p-value below 0.05 was considered statistically significant and the corresponding null hypothesis was rejected. More details are given in Chapter 3.

[4] RQ= Research question

5.1 Findings for Research Question 1: Knowledge of SRH by demographics and communication with parents

Research question 1 was as follows: *Is there a relationship between SRH knowledge and demographic characteristics (age, type of university attended, level of study, area of residence, marital status, mother's and father's level of education, self-rated religiosity and self-rated cultural conformity) or willingness to discuss sex-related matters with one's parents?*

SRH knowledge was assessed by asking the respondents to identify the accuracy of seven statements. Each correct answer scored 1, each incorrect answer or 'don't know' scored 0. Thus the total scores ranged from 0-7. This total score was categorized into two groups: ≤3 and ≥4. That is, respondents who assessed the truth of four or more statements correctly were considered to have a good level of knowledge in sexual and reproductive health. The cut-off value of 4 is the median value of the total score of 7.

For each of the factors addressed by RQ1, the null and alternative hypotheses are:

> H01: There is no relationship between the demographic factor / communication with parents and SRH knowledge.
>
> Ha1: There is a relationship between the demographic factor / communication with parents and SRH knowledge.

Table 5.1 shows the analysis of the relevant results. Recall that a participant with a score on SRH knowledge of three or less is referred as having "poor SRH knowledge", while scores greater than three indicate "good SRH knowledge". The results of the two-sample t-test and the chi-squared test of independence are also listed in Table 5.1.

Table 5.1: Knowledge of sexual & reproductive health by demographics and communication with parents

Characteristics		Sexual & Reproductive Health Scores				t-value	p-value
		≤3		≥4			
Age in years (Mean / SD)		22.2 / 3.6		23.8 / 4.9		-2.75	0.006*
		Frequency	**%**	**Frequency**	**%**	**X^2-value**	**p-value**
Type of university	Private	112	87.5	16	12.5	1.69	0.19
	Governmental	195	82.3	42	17.7		
Level of study	Undergraduate	276	85.7	46	14.3	7.46	0.006*
	Postgraduate	23	67.6	11	32.4		
Area of residence	North Riyadh	103	81.7	23	18.3	1.62	0.81
	South Riyadh	32	82.1	7	17.9		
	West Riyadh	27	90.0	3	10.0		
	East Riyadh	123	85.4	21	14.6		
	Outside Riyadh	22	84.6	4	15.4		
Marital status	Single	265	86.9	40	13.1	10.70	0.001*
	Married	42	70.0	18	30.0		
Mother's education	No education	41	91.1	4	8.9	3.22	0.52
	Primary school	63	86.3	10	13.7		
	Intermediate	37	78.7	10	21.3		
	High School	76	83.5	15	16.5		
	University	88	82.2	19	17.8		
Father's education	No education	11	73.3	4	26.7	3.70	0.45
	Primary school	39	90.7	4	9.3		
	Intermediate	37	88.1	5	11.9		
	High school	70	84.3	13	15.0		
	University	147	82.1	32	17.9		
How religious do you consider yourself?	Highly religious	2	50.0	2	50.0	3.55	0.31
	Religious	62	83.8	12	16.2		
	Somewhat religious	216	84.7	39	15.3		
	Not at all religious	26	83.9	5	16.1		
How traditional do you consider yourself?	Highly traditional	9	75.0	3	25.0	4.66	0.19
	Traditional	33	78.6	9	21.4		
	Somewhat traditional	203	87.1	30	12.9		
	Not at all traditional	61	79.2	16	20.8		
I can discuss sex with my parents	Strongly disagree	91	91.0	9	9.0	18.97	<0.0001*
	Disagree	117	84.8	21	15.2		
	Agree	93	80.9	22	19.1		
	Strongly agree	4	40.0	6	60.0		

Note: * indicates significance at the 0.05 level.

There were four significant results:

- The bivariate analysis indicates a statistically significant difference in the mean values of respondents' age, the mean being 22.2 years for those with SRH scores of 3 or less and 23.8 years in those scoring above 3. This implies that respondents' knowledge of sexual and reproductive health matters increased with age. There was a statistically significant relationship between level of study and SRH knowledge, whereby 32.4% of those studying at the postgraduate level had scores above three, as against only 14.3% of those on undergraduate courses ($\chi^2 = 7.46$; $p = 0.006$). Thus, undergraduate students tended to have poorer SRH knowledge than postgraduate students. Marital status also made a statistically significantly difference to SRH scores. Being married gave respondents roughly the same advantage over single respondents on this measure as for postgraduate students over undergraduates, with 30% of married respondents scoring over three, compared with 13.1% of single ones ($\chi^2 = 10.7$; $p=0.001$).

- Finally, respondents' agreement with the statement that they were able to discuss sex with their parents was statistically significantly distributed across the two categories of SRH score. A high proportion of respondents who disagreed strongly (91%), disagreed (84.8%) and agreed (80.9%) scored over three, whereas 60% of those who agreed strongly that they could discuss sex with their parents scored three or less on SRH knowledge, a highly significant difference ($\chi^2 = 18.97$; $p < 0.0001$).

- On all six other demographic characteristics (state vs. private university, area of residence, mother's education, father's education, self-related religiosity and self-related cultural conformity), no relationship was found with the distinction between good and poor SRH knowledge.

5.2 Findings for Research Question 2: Knowledge of SRH by exposure to media and socialisation activities

Research question 2 was as follows: *Is there a relationship between personal activities and media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs or books illustrating sexual activity and seeing films that illustrate sexual activity) and SRH knowledge?*

For each factor, the null and alternative hypotheses are:

> H02: There is no relationship between personal activities / media exposure and SRH knowledge.
>
> Ha2: There is a relationship between personal activities / media exposure and SRH knowledge.

Table 5.2 shows the analysis of results pertinent to these hypotheses, where again frequency and percentage values are given for poor and good SRH knowledge scores, along with chi-squared test results. It can be seen that the null hypothesis was rejected for only two of the questions, regarding cigarettes and sexually explicit films.

- More than a third (34.8%) of respondents who smoked cigarettes scored more than three on SRH knowledge, compared with only 14.7% of respondents who did not smoke (χ^2 = 6.51; p = 0.011). This indicates that those who smoked were significantly more likely to have good SRH knowledge than those who did not smoke.
- As to how often respondents had seen films depicting sexual activity, there was relatively little difference in the distribution of good and poor SRH knowledge scores between those who said that they had never seen such films and those who had done so once or twice, with 13.8% and 11.5% respectively scoring above three.

However, SRH knowledge was significantly better in those having seen such films three or four times (where 22% scored above three), and five times or more (33.3%). The tendency for those who had seen sexually explicit films more often to have better SRH knowledge is statistically significant ($\chi^2 = 10.21$; p = 0.017).

- Results for the other questions in Table 5.2 indicate that there was no statistically significant relationship of SRH knowledge with any of the following: watching satellite TV, smoking sheesha, drinking alcohol, using illegal drugs and seeing photographs or books illustrating sexual activity.

Table 5.2: Knowledge of sexual & reproductive health by exposure to media and socialisation activities

Media exposure/ socialisation activities		Sexual & Reproductive Health Scores				X^2-value	p-value
		≤ 3		> 3			
		Frequency	%	Frequency	%		
Do you watch satellite TV?	Yes	290	84.1	55	15.9	0.007	0.93
	No	15	83.3	3	16.7		
Do you smoke cigarettes?	Yes	15	65.2	8	34.8	6.51	0.011*
	No	291	85.3	50	14.7		
Do you smoke sheesha?	Yes	24	77.4	7	22.6	1.01	0.29
	No	281	84.6	51	15.4		
Do you drink alcohol?	Yes	5	71.4	2	28.6	0.84	0.35
	No	300	84.3	56	15.7		
Do you use illegal drugs?	Yes	2	50.0	2	50.0	3.68	0.16
	No	304	84.5	56	15.5		
How often have you had occasion to see photographs or books illustrating sexual activity?	Never	127	88.2	17	11.8	7.59	0.05
	Once or twice	95	85.6	16	14.4		
	3 or 4 times	29	82.9	6	17.1		
	5 times or more	54	74.0	19	26.0		
How often have you seen films that illustrate sexual activity?	Never	162	86.2	26	13.8	10.21	0.017*
	Once or twice	85	88.5	11	11.5		
	3 or 4 times	39	78.0	11	22.0		
	5 times or more	20	66.7	10	33.3		

Note: * indicates significance at the 0.05 level.

As the bivariate analysis showed the statistical significance of some variables, the next step was to perform a multivariate analysis, to identify the variables which were independently related to SRH knowledge.

5.2.1 Multiple logistic regression

Moving on from the bivariate analyses that considered each demographic or social factor separately in relation to SRH knowledge, an MLR analysis was undertaken to consider these factors together, since some significant factors (e.g. age) were correlated with others (e.g. postgraduate study and marital status).

To identify the independent factors associated in some respondents with a low level of knowledge, an MLR analysis was carried out, with SRH knowledge scores as the dependent variable. The results show significant associations of SRH score with marital status, communication with parents and smoking; specifically, low SRH knowledge was statistically significantly associated with being single, with responding "strongly disagree", "disagree", or "agree" to the statement "I can discuss issues about sex with my mother or father" and with not smoking cigarettes. First, marital status was independently statistically significantly associated with a low SRH knowledge score (≤3). The odds ratio of 2.59 (95% CI: 1.29, 5.20) indicates that the odds of respondents of single status having an SRH knowledge score below 4 was 2.59 times higher than for those who were currently married, which is a statistically significant association ($p<0.0001$).

Three responses to the statement "I can discuss issues about sex with my mother or father" were also independently statistically significantly associated with an SRH score of 3 or less. The odds ratio of 17.72 (95% CI:3.65, 85.89) for "strongly disagree" indicates that the odds of a respondent who strongly disagreed with the above statement having an SRH knowledge score of ≤3 was 17.72 times higher than for those who answered "strongly

agree" to the same statement. Similarly, the odds ratios for the other possible responses (disagree & agree) indicate statistically significant independent associations with a low knowledge score.

Among the socialisation activities, only a negative response to "Do you smoke cigarettes?" was statistically significantly independently associated with a low SRH knowledge score: the odds of a respondent who did not smoke having a score below 4 was found to be 2.74 (95% C.I:1.04, 7.24) times greater than for a respondent who reported smoking cigarettes. Table 5.3 sets out the above independent associations.

Table 5.3: Independent factors associated with low (≤3) SRH knowledge scores, by binary multiple logistic regression

Independent factors		**Adjusted odds ratio (95% CI)**	**p-value**
Marital status	Single	2.59(1.29,5.20)	<0.0001
	Currently married	1.0	
I can discuss issues about sex with my mother or father	Strongly disagree	17.72(3.65,85.89)	<0.0001
	Disagree	10.22(2.27,45.91)	0.002
	Agree	9.22(2.06,41.25)	0.004
	Strongly agree	1.0	
Do you smoke cigarettes?	Yes	1.0	
	No	2.74(1.04,7.24)	0.042

5.3 Findings for Research Question 3: Knowledge of contraceptives by demographics and communication with parents

Research question 3 was as follows: *Is there a relationship between knowledge of contraceptive methods and demographic characteristics (age, type of university, level of study, area of residence, marital status, mother's level of education, father's level of education, self-rated religiosity, self-rated cultural conformity) or willingness to discuss sex-related matters with one's parents?*

For each factor, the null and alternative hypotheses are:

H03: There is no relationship between the demographic factor / communication with parents and knowledge of contraceptive methods.

Ha3: There is a relationship between the demographic factor / communication with parents and knowledge of contraceptive methods.

Table 5.4 shows the analysis of results applicable to research question 3. Recall that responses with a score on knowledge of contraceptive methods of three or less were described as having "poor knowledge", those scoring four or five as having "fair knowledge" and those with a score greater than five as having "good knowledge of contraceptive methods". Table 5.4 also shows test results for ANOVA (which was used to compare the mean values of ages across the three categories of knowledge of contraceptives) and the chi-squared test, indicating that six of the factors had no statistically significant association with contraceptive knowledge, while there was such a relationship for three demographic factors (age, level of study and marital status) and for communication with parents.

Table 5.4: Knowledge of sexual & reproductive health by demographics and communication with parents

Characteristics		Knowledge of contraceptive methods						F-value	p-value
		≤ 3		4 – 5		≥ 6			
Age in years: Mean (SD)		21.2 (2.4)		21.7 (2.8)		23.8 (4.7)		16.15	<0.0001*
		Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**	**X^2-value**	**p-value**
Type of University	Private	28	21.9	33	25.8	67	52.3	5.44	0.066
	State	64	27.0	79	33.3	94	39.7		
Level of study	Undergraduate	86	26.7	106	32.9	130	40.4	25.46	<0.0001*
	Postgraduate	1	2.9	4	11.8	29	85.3		
Area of residence	North Riyadh	35	27.8	38	30.2	53	42.1	14.59	0.068
	South Riyadh	11	28.2	13	33.3	15	38.5		
	West Riyadh	12	40.0	8	26.7	10	33.3		
	East Riyadh	32	22.2	48	33.3	64	44.4		
	Outside Riyadh	2	7.7	5	19.2	19	73.1		
Marital status	Single	86	28.2	104	34.1	115	37.7	30.89	<0.0001*
	Married	6	10.0	8	13.3	46	76.7		
Mother's education	None	10	22.2	19	42.2	16	35.6	9.63	0.29
	Primary	23	31.5	21	28.8	29	39.7		
	Intermediate	11	23.4	17	36.2	19	40.4		
	High school	18	19.8	23	25.3	50	54.9		
	University	29	27.1	32	29.9	46	43.0		
Father's education	None	4	26.7	6	40.0	5	33.3	6.64	0.58
	Primary	13	30.2	16	37.2	14	32.6		
	Intermediate	8	19.0	13	31.0	21	50.0		
	High school	25	30.1	20	24.1	38	45.8		
	University	41	22.9	57	31.8	81	45.3		
How religious do you consider yourself?	Highly religious	2	50.0	1	25.0	1	25.0	8.97	0.17
	Religious	19	25.7	25	33.8	30	40.5		
	Somewhat religious	61	23.9	83	32.5	111	43.5		
	Not at all religious	9	29.0	3	9.7	19	61.3		
How traditional do you consider yourself?	Highly traditional	2	16.7	5	41.7	5	41.7	2.38	0.88
	Traditional	12	28.6	14	33.3	16	38.1		
	Somewhat traditional	60	25.8	71	30.5	102	43.8		
	Not at all traditional	17	22.1	22	28.6	38	49.4		
I can discuss sex with my parents	Strongly disagree	35	35.0	28	28.0	37	37.0	18.87	0.004*
	Disagree	33	23.9	52	37.7	53	38.4		
	Agree	23	20.0	30	26.1	62	53.9		
	Strongly agree	0	0.0	2	20.0	8	80.0		

Note: * indicates significance at the 0.05 level.

- There was a significant difference in age between respondents with different levels of knowledge of contraceptive methods: F (2, 335) = 16.15, p<0.0001. The results of pairwise comparisons with p-values adjusted using Tukey's HSD indicate that there was an age difference between respondents with poor and good knowledge of contraceptive methods (p<0.0001) and between those with fair and good knowledge

($p<0.0001$), but no significant age difference between those with fair and poor knowledge ($p = 0.712$). Overall, it can be said that as might be expected, older respondents tended to have better knowledge of contraceptive methods. An equivalent relationship can be discerned between contraceptive knowledge and level of study. For example, the proportion of postgraduate students scoring six or more (85.3%) was more than twice as high as for undergraduate students (40.4%). The differences were statistically significantly across the three categories of contraceptive knowledge score ($\chi^2 = 25.46$; $p<0.0001$). Thus, undergraduates tended to have poorer knowledge of contraceptive methods than postgraduate students, which is consistent with the age relationship discussed above.

- Unsurprisingly, there was a statistically significant relationship ($\chi^2 = 30.89$; $p<0.001$) between marital status and knowledge of contraceptive methods, with married respondents tending to be more knowledgeable than unmarried ones. Again, more than twice the proportion of married respondents (76.7%) as unmarried ones (37.7%) scored six or more on contraceptive knowledge. Thus, when the factors age, level of study and marital status were each separately compared with scores for knowledge of contraceptive methods, being older, studying at a higher level and being married each conveyed an advantage in terms of better knowledge of contraceptive methods.

- Strength of agreement with the statement "I can discuss sexual matters with my parents", measured on a four-point scale was also statistically significantly distributed across the three categories of contraceptive knowledge score. Respondents scoring six or above included relatively few of those who disagreed strongly (37%) or disagreed (38.4%) with this statement, but constituted more than half of those who agreed and four fifths of those who agreed strongly that they were able to have such discussions. This distribution is highly statistically significant ($\chi^2 = 18.87$; $p = 0.004$) and shows

clearly that respondents who were able to discuss sex with their parents tended to have better knowledge of contraceptive methods.

- Table 5.4 shows no evidence of a significant relationship between knowledge of contraceptive methods and any other factor: area of residence, university type, mother's or father's education, self-rated religiosity or cultural conformity.

5.4Findings for Research Question 4: Knowledge of contraceptive methods by exposure to media and socialisation activities

Research question 4 was as follows: *Is there a relationship of personal activities and media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs, books or films illustrating sexual activity) with knowledge of contraceptive methods?*

For each variable, the null and alternative hypotheses are:

H04: There is no relationship between personal activities / media exposure and knowledge of contraceptive methods.

Ha4: There is a relationship between personal activities / media exposure and knowledge of contraceptive methods.

Table 5.5 shows the analysis of results relevant to RQ4, including the chi-squared test of independence. The categories of good, fair and poor knowledge of contraceptive methods are as defined above. The results indicate that smoking cigarettes and exposure to sexually explicit books, photographs and films were all related to level of contraceptive knowledge, whereas there was no relationship between contraceptive knowledge score and any of the other four factors.

Table 5.5: Knowledge of contraceptive methods by exposure to media and socialisation activities

Media exposure/ socialisation activities		Knowledge scores on contraceptives						X^2-value	p-value
		≤3		4 - 5		≥6			
		Freq	%	Freq	%	Freq	%		
Do you watch satellite TV?	Yes	88	25.5	106	30.7	151	43.8	0.72	0.69
	No	3	16.7	6	33.3	9	50.0		
Do you smoke cigarettes?	Yes	3	13.0	4	17.4	16	69.6	6.39	0.041*
	No	88	25.8	108	31.7	145	42.5		
Do you smoke sheesha?	Yes	6	19.4	8	25.8	17	54.8	1.53	0.46
	No	85	25.6	103	31.0	144	43.4		
Do you drink alcohol?	Yes	0	0.0	2	28.6	5	71.4	2.98	0.23
	No	91	25.6	109	30.6	156	43.8		
Do you use illegal drugs?	Yes	0	0.0	0	0.0	4	100.0	8.09	0.09
	No	91	25.2	112	31.2	157	43.6		
How often have you had occasion to see photographs or books illustrating sexual activity?	Never	51	35.4	42	29.2	51	35.4	35.41	<0.0001*
	Once or twice	28	25.2	43	38.7	40	36.0		
	3 or 4 times	7	20.0	8	22.9	20	57.1		
	5 times or more	5	6.8	18	24.7	50	68.5		
How often have you seen films that illustrate sexual activity?	Never	63	33.5	55	29.3	70	37.2	29.09	<0.0001*
	Once or twice	20	20.8	37	38.5	39	40.6		
	3 or 4 times	7	14.0	14	28.0	29	58.0		
	5 times or more	1	3.3	6	20.0	23	76.7		

Note: * indicates significance at the 0.05 level.

- As with SRH knowledge, there was a statistically significant relationship between smoking cigarettes and knowledge of contraceptive methods, whereby those who smoked cigarettes tended to have better knowledge of contraceptive methods than those who did not: χ^2 (2, N=364) = 6.39, p = 0.041.
- Again in line with results for SRH knowledge, there was a relationship between seeing films depicting sexual activity and knowledge of contraceptive methods, whereby those who had seen such films five times or more tended to have better knowledge of contraceptive methods than those with less exposure. This relationship was statistically significant: χ^2 (6, N=364) = 29.09, p<0.0001.

- Unlike the case of SRH knowledge, there was a similar relationship between seeing photographs or books illustrating sexual activity and knowledge of contraceptive methods, with respondents who had seen such material at least five times tending to have a significantly better knowledge of contraceptive methods: χ^2 (6, N=363) = 8.09, $p<0.0001$.
- The remaining results were similar to those for SRH knowledge, in that no relationship with knowledge of contraceptive methods was detected for any of the following factors: watching satellite television, smoking sheesha, drinking alcohol or using illegal drugs.

5.4.1 Multivariate analysis

For the purpose of doing a multivariate analysis, the cut-off point was modified as follows. Knowledge of contraceptive methods was assessed through awareness of eleven different methods. A score of 1 was given for each method known, giving a total score range of 0-11. As the use of contraceptive methods is mostly associated with married life, we expected very little knowledge among unmarried female respondents; hence this total possible score of 11 was categorized into two groups: ≤5 and ≥6. Respondents claiming knowledge of six or more contraceptive methods can be considered as having good knowledge of contraceptive methods. The cut-off value of 6 is the median value of the total score of 11.

To identify the independent factors causing some participants to have a low level of contraceptive knowledge (≤5), an MLR analysis was carried out with contraceptive knowledge scores as the dependent variable, using the above binary classification of scores. The following values of variables were found to be independently statistically significantly associated with a contraceptive knowledge score below 6: undergraduate level

of study, single marital status and never, once or twice having seen photographs or books illustrating sexual activity. For level of study, the odds ratio of 8.44 (95% CI: 2.78, 25.65) indicates that the odds of respondents at an undergraduate level of study having a contraceptive knowledge score of ≤5 was 8.44 times higher than for those at a postgraduate level, which is a statistically significant association ($p<0.0001$). In the case of marital status, the odds ratio of 3.57 (95% CI: 1.74, 7.35) indicates that the odds of respondents who were single having a low contraceptive knowledge score was 3.57 times higher than for married respondents, which again is a statistically significant association ($p=0.001$).

In relation to socialisation activities, responses to "How often have you had occasion to see photographs or books illustrating sexual activity?" were also statistically significantly independently associated with a contraceptive knowledge score ≤5. The odds ratios of 3.75 (95% CI: 1.79, 10.75) for 'never' and 4.40 (95% CI: 2.18, 8.87) for 'once or twice' in response to this question indicate that the odds of respondents who claimed never to have seen such material and to have seen it only once or twice having a low contraceptive knowledge score was 3.75 and 4.40 times higher respectively than for those who had seen it five times or more. The odds ratio of 2.07 (95% CI: 0.80, 5.32) for the remaining response (3 to 4 times) shows that this exposure was not statistically significantly associated with a low contraceptive knowledge score (Table 5.6).

Table 5.6: Independent factors associated with low (≤5) contraceptive knowledge scores (by binary multiple logistic regression)

Independent factors		Adjusted odds ratio (95% CI)	p-value
Level of study	Undergraduate	8.44(2.78,25.65)	<0.0001
	PG	1.0	
Marital status	Single	3.57(1.74.7.35)	0.001
	Currently married	1.0	
How often have you had occasion to see photographs or books illustrating sexual Activity?	Never	3.75(1.93,7.29)	<0.0001
	Once or twice	4.40(2.18,8.87)	<0.0001
	3 or 4 times	2.07(0.80,5.32)	0.132
	5 times or more	1.0	

5.5 Findings for Research Question 5: Knowledge of STIs/HIV by demographics and communication with parents

Research question 5 was as follows: *Is there a relationship between knowledge of STIs/HIV and demographic characteristics (age, type of university attended, level of study, area of residence, marital status, mother's and father's level of education, self-rated religiosity and self-rated cultural conformity) or willingness to discuss sex-related matters with one's parents?*

For each factor, the null and alternative hypotheses are:

> H05: There is no relationship between the demographic factor / communication with parents and knowledge of STIs/HIV.
>
> Ha5: There is a relationship between the demographic factor / communication with parents and knowledge of STIs/HIV.

Table 5.7 shows the analysis of results related to RQ5. Recall that a participant with a score of five or less on STI/HIV knowledge is considered to have poor knowledge, while a score of six to twelve indicates moderate knowledge and a score over 12 means good STI/HIV knowledge. The results, including those of ANOVA and the chi-squared test of

independence, reveal only two factors having statistically significant relationships with STI/HIV knowledge scores, these being level of study and marital status.

Table 5.7: STI/HIV knowledge by demographics and communication with parents

Characteristics		**Knowledge of STI/HIV scores**						**X^2-value**	**p-value**
		≤5		**6 – 12**		**≥13**			
Age in years: Mean (SD)		22.5 (3.6)		21.9 (3.5)		23.0 (4.3)		2.47	0.086
		Freq	**%**	**Freq**	**%**	**Freq**	**%**		
Type of university	Private	41	32.0	42	32.8	45	35.2	1.96	0.38
	State	60	25.3	82	34.6	95	40.1		
Level of study	Undergraduate	93	28.9	110	34.2	119	37.0	6.55	0.038*
	Postgraduate	5	14.7	9	26.5	20	58.8		
Area of residence	North Riyadh	38	30.2	33	26.2	55	43.7	7.79	0.45
	South Riyadh	12	30.8	14	35.9	13	33.3		
	West Riyadh	9	30.0	11	36.7	10	33.3		
	East Riyadh	38	26.4	56	38.9	50	34.7		
	Outside Riyadh	4	15.4	10	38.5	12	46.2		
Marital status	Single	87	28.5	110	36.1	108	35.4	7.08	0.029*
	Married	14	23.3	14	23.3	32	53.3		
Mother's education	No education	14	31.1	22	48.9	9	20.0	11.36	0.18
	Primary school	20	27.4	23	31.5	30	41.1		
	Intermediate	13	27.7	15	31.9	19	40.4		
	High school	20	22.0	35	38.5	36	39.6		
	University	33	30.8	29	27.1	45	42.1		
Father's education	No education	5	33.3	8	53.3	2	13.3	13.05	0.11
	Primary school	18	41.9	13	30.2	12	27.9		
	Intermediate	8	19.0	17	40.5	17	40.5		
	High School	19	22.9	32	38.6	32	38.6		
	University	50	27.9	54	30.2	75	41.9		
How religious do you consider yourself?	Highly religious	0	0.0	3	75.0	1	25.0	4.04	0.67
	Religious	23	31.1	25	33.8	26	35.1		
	Somewhat religious	69	27.1	86	33.7	100	39.2		
	Not at all religious	8	25.8	10	32.3	13	41.9		
How traditional do you consider yourself?	Highly traditional	2	16.7	6	50.0	4	33.3	6.97	0.32
	Traditional	14	33.3	8	19.0	20	47.6		
	Somewhat traditional	66	28.3	83	35.6	84	36.1		
	Not at all traditional	18	23.4	27	35.1	32	41.6		
I can discuss sex with my parents	Strongly disagree	31	31.0	38	38.0	31	31.0	3.69	0.72
	Disagree	37	26.8	47	34.1	54	39.1		
	Agree	29	25.2	36	31.3	50	43.5		
	Strongly agree	3	30.0	3	30.0	4	40.0		

Note: * indicates significance at the 0.05 level.

- As with SRH and contraceptive knowledge, the extent of STIs/HIV knowledge was found to be significantly related to level of study: χ^2 (2, N=356) = 6.55, p = 0.038. Thus, a higher proportion (58.8%) of postgraduate students scored 13 or more on STIs/HIV knowledge, compared with 37% for undergraduates.

- There was a very similar relationship between marital status and knowledge of STIs/ HIV, the equivalent proportions being 53.3% and 35.4%: χ^2 (2, N=365) = 7.08, p = 0.029.

- However, in contrast to the results for SRH and contraceptive knowledge, no significant difference was found in the mean age of participants across the three bands of STIs/HIV knowledge scores; nor was there any evidence of a significant relationship between these scores and ability to talk to one's parents about sex.

- As was the case for both SRH and contraceptive knowledge, none of the remaining five factors in this group had a significant relationship with STIs/HIV knowledge.

5.6 Findings for Research Question 6: Knowledge of STIs/HIV by exposure to media and socialisation activities

Research question 6 was as follows: *Is there a relationship between personal activities or media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs, books or films illustrating sexual activity) and knowledge of STIs/HIV?*

For each factor, the null and alternative hypotheses are:

> H06: There is no relationship between personal activities / media exposure and knowledge of STIs/HIV.

Ha6: There is a relationship between personal activities / media exposure and knowledge of STIs/HIV.

Table 5.8 shows the analysis of results germane to RQ6. The three levels of STIs/HIV knowledge are defined as above. The results, including the chi-squared test of independence, show significant relationships with three of the seven factors.

Table 5.8: STI/HIV knowledge by exposure to media and socialisation activities

Media exposure/ socialisation activities		Knowledge of STI & HIV scores						X^2-value	p-value
		≤5		6 to 12		≥13			
		Freq	%	Freq	%	Freq	%		
Do you watch Satellite TV?	Yes	97	28.1	112	32.5	136	39.4	8.99	0.011 *
	No	3	16.7	12	66.7	3	16.7		
Do you smoke cigarettes?	Yes	4	17.4	10	43.5	9	39.1	1.55	0.46
	No	96	28.2	114	33.4	131	38.4		
Do you smoke Sheesha?	Yes	7	22.6	16	51.6	8	25.8	4.88	0.09
	No	93	28.0	107	32.2	132	39.8		
Do you drink alcohol?	Yes	1	14.3	2	28.6	4	57.1	1.14	0.56
	No	98	27.5	122	34.3	136	38.2		
Do you use illegal drugs?	Yes	0	0.0	3	75.0	1	25.0	5.26	0.26
	No	100	27.9	121	33.5	139	38.7		
How often have you had occasion to see photo-graphs or books illustrating sexual activity?	Never	44	30.6	53	36.8	47	32.6	14.7	0.023 *
	Once or twice	28	25.2	44	39.6	39	35.1		
	3 or 4 times	14	40.0	7	20.0	14	40.0		
	5 times or more	14	19.2	20	27.4	39	53.4		
How often have you seen films that illustrate sexual activity?	Never	53	28.2	68	36.2	67	35.6	12.99	0.043 *
	Once or twice	29	30.2	37	38.5	30	31.3		
	3 or 4 times	14	28.0	10	20.0	26	52.0		
	5 times or more	4	13.3	9	30.0	17	56.7		

Note: * indicates significance at the 0.05 level.

- Unlike knowledge of SRH or contraceptives, STIs/HIV knowledge was found to have a relationship with watching satellite TV, whereby those who did not watch it were significantly more likely to have fair knowledge of STIs/HIV than those who did: $\chi^2(2, N=363) = 8.99$, $p = 0.011$.
- In common with contraceptive knowledge, but not SRH knowledge, there was a relationship between seeing photographs or books illustrating sexual activity and

knowledge of STIs/HIV, with participants who had seen such material at least five times being significantly more likely to have better STI/HIV knowledge: $\chi^2(6, N = 363) = 14.7, p = 0.023$.

- In line with both other areas of knowledge measured, there was a significant relationship between seeing sexually explicit films and STI/HIV knowledge. Again, those exposed five times or more tended to be more knowledgeable about STIs: $\chi^2 (6, N=364) = 12.99, p = 0.043$.
- None of the other factors (smoking cigarettes, smoking sheesha, drinking alcohol or using illegal drugs) was significantly related to knowledge of STIs/HIV.

5.6.1 Multivariate analysis

The cut-off point was again changed for the purpose of performing the MLR test. Respondents were asked several questions on STIs and HIV, such as whether they had heard of any of the five STIs listed, modes of transmission, protection from infection, whether HIV is curable and the different signs and symptoms of STIs. Assigning a score of 1 for each correct answer and 0 for each incorrect or 'don't know' answer gave a total score in the range of 0-25. As the prevalence of STIs and HIV is low in Saudi Arabia, we expected little knowledge of STIs and HIV among the female students; hence this total possible score of 25 was categorized into two groups: ≤12 and ≥13. Those scoring 13 or more were considered to have good knowledge of STIs and HIV. The cut-off of 13 is the median value of the total score of 25.

The MLR results show that a low score on this measure was statistically significantly independently associated with only one variable, i.e. "perceptions of seeking knowledge", as the odds of having an STI/HIV knowledge score of 12 or less was 2.17 (95% CI: 1.17, 4.02) times higher for those who responded "No" to the question "Do you think it is easy

to obtain information on sexual and reproductive health?" than for respondents who answered "Yes", which is statistically significant (Table 5.9).

Table 5.9: Independent factor associated with low (≤12) STI/HIV knowledge scores (by binary multiple logistic regression)

Independent factor		Adjusted odds ratio (95% CI)	p-value	
Do you think it is easy to obtain information on sexual and Reproductive health?	Yes	1.0		
	No	2.17(1.17,4.02)	0.014	

5.7 Findings for Research Question 7: Total knowledge by demographics and communication with parents

Research question 7 was as follows: *Is there a relationship between demographic characteristics (age, type of university attended, level of study, area of residence, marital status, mother's and father's level of education, self-rated religiosity, self-rated cultural conformity) or willingness to discuss sex-related matters with one's parents and total knowledge of SRH, contraceptive methods and STIs/HIV?*

For each factor, the null and alternative hypotheses are:

H07: There is no relationship between the demographic factor / communication with parents and total knowledge.

Ha7: There is a relationship between the demographic factor / communication with parents and total knowledge.

Table 5.10 shows the analysis of results relevant to RQ7. Recall that a respondent with a total knowledge score of 17 or less is described as having poor total knowledge, while a score above 17 corresponds to good total knowledge. The results, including those of the t-test and chi-squared test of independence, indicate that of the four factors having a

relationship with one or more of the three individual knowledge scores, three (age, level of study and marital status) were also significantly related to total knowledge.

- The bivariate analysis indicates a statistically significant difference in the mean age of respondents, which was 22.05 years in those with total knowledge scores of 17 or less, whereas those scoring over 17 were on average about a year older, with a mean age of 22.98 years ($t = -2.19$, $p = 0.029$). This implies that the older the respondent, the higher her total knowledge scores. There was also a relationship between level of study and total knowledge, with postgraduate students, as expected, scoring more highly: χ^2 (1, N=356) = 11.22, $p = 0.001$.
- Finally, there was the expected relationship between marital status and total knowledge, as there was for each separate knowledge score, with married respondents scoring more highly than single ones: $\chi^2(1, N=364) = 10.68$, $p = 0.001$.
- In contrast to the results for SRH and contraceptive knowledge, but in common with that for STI/HIV knowledge, there was no relationship between total knowledge score and willingness to discuss sex with one's parents. The remaining six results are completely consistent with those for the individual knowledge scores, in that no other significant relationships emerged from the analysis.

Table 5.10: Total knowledge by demographics and communication with parents

Characteristics		Total knowledge scores				t-value	p-value
		≤ 17		>17			
Age in years: Mean (SD)		22.05 (3.38)		22.98 (4.34)		-2.19	0.029*
		Frequency	**%**	**Frequency**	**%**	**X^2-value**	
Type of university	Private	67	35.6	60	34.1	0.09	0.76
	State	121	64.4	116	65.9		
Level of study	Undergraduate	173	95.6	149	85.1	11.22	0.001*
	Postgraduate	8	4.4	26	14.9		
Area of residence	North Riyadh	62	33	64	36.4	6.79	0.15
	South Riyadh	23	12.2	16	9.1		
	West Riyadh	18	9.6	12	6.8		
	East Riyadh	77	41	66	37.5		
	Outside Riyadh	8	4.3	18	10.2		
Marital status	Single	169	89.9	136	77.3	10.66	0.001*
	Married	19	10.1	40	22.7		
Mother's education	No education	30	16	15	8.6	5.82	0.21
	Primary school	35	18.6	38	21.7		
	Intermediate	26	13.8	21	12.0		
	High school	42	22.3	49	28.0		
	University	55	29.3	52	29.7		
Father's education	No education	10	5.3	5	2.9	5.44	0.24
	Primary school	28	14.9	15	8.6		
	Intermediate	22	11.7	20	11.5		
	High school	42	22.3	41	23.6		
	University	86	45.7	93	53.4		
How religious do you consider yourself?	Highly religious	3	1.6	1	0.6	1.22	0.75
	Religious	40	21.3	34	19.3		
	Somewhat religious	130	69.1	125	71.0		
	Not at all religious	15	8.0	16	9.1		
How traditional do you consider yourself?	Highly traditional	5	2.7	7	4.0	4.56	0.21
	Traditional	18	9.6	24	13.6		
	Somewhat traditional	130	69.1	103	58.5		
	Not at all traditional	35	18.6	42	23.9		
I can discuss sex with my parents	Strongly disagree	59	31.4	41	23.4	5.38	0.15
	Disagree	74	39.4	64	36.6		
	Agree	51	27.1	64	36.6		
	Strongly agree	4	2.1	6	3.4		

Note: * indicates significance at the 0.05 level.

5.8 Findings for Research Question 8: Total knowledge by media exposure and socialising activities

Research question 8 was as follows: *Is there a relationship of personal activities and media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs, books or films illustrating sexual activity) with total knowledge?*

For each factor, the null and alternative hypotheses are:

H08: There is no relationship between personal activities / media exposure and total knowledge.

Ha8: There is a relationship between personal activities / media exposure and total knowledge.

Table 5.11 shows the analysis of results related to RQ8. The results, including for the chi-squared test of independence, show that the difference between good and poor total knowledge, as defined above, was related to only two of the factors: exposure to sexually explicit photographs or books and films. No relationship was found with watching satellite TV, smoking cigarettes or sheesha, or the consumption of alcohol or illegal drugs.

- There was a relationship between total knowledge and seeing photographs or books illustrating sexual activity, whereby those who had done so at least five times tended to have better total knowledge: $\chi^2(3, N = 363) = 15.25, p = 0.002$.
- There was a similar relationship between greater total knowledge and exposure to at least five films depicting sexual activity: $\chi^2 (3, N=364) = 9.66, p = 0.022$.

Table 5.11: Total knowledge by media exposure and socialising activities

Media exposure/ socialising activities		Total knowledge scores				X^2-value	p-value
		≤17		> 17			
		Frequency	%	Frequency	%		
Do you watch satellite TV?	Yes	175	93.1	170	97.1	3.18	0.07
	No	13	6.9	5	2.9		
Do you smoke cigarettes?	Yes	9	4.8	14	8.0	1.54	0.21
	No	179	95.2	162	92		
Do you smoke sheesha?	Yes	16	8.6	15	8.5	0.00	0.991
	No	171	91.4	161	91.5		
Do you drink alcohol?	Yes	1	0.5	6	3.4	3.96	0.057
	No	186	99.5	170	96.6		
Do you use illegal drugs?	Yes	0	0.0	4	2.3		
	No	188	100.0	172	97.7		
How often have you had occasion to see photographs or books illustrating sexual activity?	Never	85	45.2	59	33.7	9.66	0.022*
	Once or twice	59	31.4	52	29.7		
	3 or 4 times	17	9.0	18	10.3		
	5 times or more	27	14.4	46	26.3		
How often have you seen films that illustrate sexual activity?	Never	107	56.9	81	46.0	15.25	0.002*
	Once or twice	54	28.7	42	23.9		
	3 or 4 times	20	10.6	30	17.0		
	5 times or more	7	3.7	23	13.1		

Note: * indicates significance at the 0.05 level.

5.8.1 Multivariate analysis

Respondents were categorized into two groups based on their total knowledge score (SRH + Contraceptives + STI & HIV). As the mean was 17.46 and the median was 17, the two groups were those having respective scores of ≤17 and >17, with respondents who scored more than 17 being considered to have good overall knowledge.

The binary MLR shows that the following values of four variables were independently statistically significantly associated with a low total knowledge score: undergraduate level of study; being single; never, once or twice having seen films illustrating sexual activity; and not obtaining information on SRH. For level of study, the odds ratio of 2.79 (95% CI: 1.19, 6.53) indicates that the odds of undergraduate respondents having a total knowledge score ≤17 was 2.79 times greater than for postgraduate respondents, which is a statistically significant association (p=0.018). As to marital status, the odds ratio of 1.97(95% CI: 1.05, 3.70) indicates that the odds of single respondents having a total knowledge score ≤17 was

1.97 times that of those who were currently married, which is a statistically significant association (p=0.034).

In relation to media exposure, the odds ratio of 4.39(95% CI: 1.79, 10.75) indicates that the odds of respondents who had never seen films illustrating sexual activity having a low total knowledge score was 4.39 times higher than for those who had seen such films five times or more. The odds ratio of 4.33 (95% CI: 1.69, 11.06) for the response of "once or twice" to this question also indicates a statistically significant independent association with a total knowledge score 17 or less.

On perceptions regarding knowledge seeking, it was found that the odds of having a low total knowledge score among respondents who replied that they did not think it was easy to obtain SRH information was 2.13 greater (95% CI: 1.24, 3.66) than among those who had responded positively to this question (Table 5.12).

Table 5.12: Independent factors associated with low (≤17) total (SRH, contraceptives, STI/HIV) knowledge scores (by multiple binary logistic regression)

Independent factors		Adjusted odds ratio (95% CI)	p-value
Level of study	Undergraduate	2.79(1.19, 6.53)	0.018
	PG	1.0	
Marital status	Single	1.97(1.05,3.70)	0.034
	Currently married	1.0	
How often have you seen films that illustrate sexual activity?	Never	4.39(1.79,10.75)	0.001
	Once or twice	4.33(1.69,11.06)	0.002
	3 or 4 times	2.19(0.79,6.06)	0.131
	5 times or more	1.0	
Do you think it is easy to obtain Information on sexual and reproductive health?	Yes	1.0	0.006
	No	2.13(1.24,3.66)	

This concludes the analysis of results related to respondents' knowledge. The following two sections are concerned with their attitudes towards sexuality and gender.

5.9 Findings for Research Question 9: Personal attitudes towards sexuality and gender by demographics

Research question 9 was as follows: *Is there a relationship between demographic characteristics (age, type of university, level of study, area of residence, marital status, mother's level of education, father's level of education, self-rated religiosity, self-rated cultural conformity) and personal attitudes towards sexuality and gender?*

For each demographic factor, the null and alternative hypotheses are:

> H09: There is no relationship between the demographic factor and personal attitudes towards sexuality and gender.
>
> Ha9: There is a relationship between the demographic factor and personal attitudes towards sexuality and gender.

Table 5.13 shows the analysis of results germane to RQ9. The attitude scores range from 14 to 56, with higher scores indicating a more negative (i.e. conservative) attitude towards sexuality and gender. The results, including those of the two-sample t-test and one-way ANOVA, show that four of the eight factors (type of university, level of study, religiosity and conformity) were significantly related to attitude, while the other four were not.

- There was a significant difference in personal attitudes towards sexuality and gender between respondents studying at private (M = 41.3, SD = 6.1) and state (M = 43.2, SD = 6.1) universities: t (334) = -2.69, p = 0.008. Thus, respondents at state universities had a more negative or conservative attitude towards sexuality and gender than those at private universities, indicated by their higher mean scores.
- Undergraduate students (M = 42.7, SD = 6.2) were also found to be more conservative than postgraduates (M = 40.2, SD = 5.9): t (327) = 2.23, p = 0.027.

- There were significant differences in personal attitudes towards sexuality and gender related to self-ratings of religiosity: $F(3, 332) = 4.82$, $p = 0.003$. The mean attitude scores listed in the table indicate a relationship between attitude and self-rated religiosity. More specifically, the results of pairwise comparisons with p-values adjusted by Tukey's HSD show significant differences in attitude scores between those who were 'religious' and 'not at all religious' ($p = 0.0001$) and between the 'somewhat religious' and 'not at all religious' respondents ($p = 0.024$). In other words, as might be expected, participants who described themselves as religious or somewhat religious had significantly more conservative attitudes towards sexuality and gender than those who were not at all religious.

Table 5.13: Personal attitudes towards sexuality & gender by demographics

Characteristics		Attitude scores		t-value/ F-value	p-value
		Mean	SD		
Type of university	Private	41.3	6.1	-2.69	0.008*
	State	43.2	6.1		
Level of study	Undergraduate	42.7	6.2	2.23	0.027*
	Postgraduate	40.2	5.9		
Area of residence	North Riyadh	41.9	5.4	2.28	0.06
	South Riyadh	43.4	5.7		
	West Riyadh	45.2	4.7		
	East Riyadh	42.6	7.1		
	Outside Riyadh	40.9	5.3		
Marital status	Single	42.6	6.2	0.41	0.68
	Married	42.2	5.8		
Mother's education	No education	41.4	7.4	0.69	0.60
	Primary school	43.2	5.3		
	Intermediate	42.7	5.2		
	High school	42.0	7.4		
	University	42.7	5.5		
Father's education	No education	40.7	8.3	0.87	0.48
	Primary school	42.9	6.3		
	Intermediate	41.2	5.4		
	High school	42.7	4.7		
	University	42.8	6.6		
How religious do you consider yourself?	Highly religious	42.0	8.2	4.82	0.003*
	Religious	44.0	7.7		
	Somewhat religious	42.4	5.3		
	Not at all religious	39.1	7.0		
How traditional do you consider yourself?	Highly traditional	46.2	4.2	7.26	<0.0001 *
	Traditional	44.4	4.9		
	Somewhat traditional	42.9	6.1		
	Not at all traditional	39.9	6.4		

Note: * indicates significance at the 0.05 level.

- There were again significant differences in personal attitudes towards sexuality and gender for respondents with different levels of self-rated cultural conformity: $F(3, 332) = 4.82$, $p = 0.003$. The table shows that mean attitude scores were progressively higher for each stronger rating of traditional values, from under 40 for those rating themselves as 'not at all traditional' to over 46 for highly traditional respondents. There was thus a direct relationship between self-rated cultural conformity and these attitudes. The results of pairwise comparisons with p-values adjusted by Tukey's HSD indicate that attitudes were significantly different between

respondents rating themselves as highly traditional and not at all traditional ($p = 0.008$), between traditional and not at all traditional ($p = 0.002$) and between somewhat traditional and not at all traditional ($p = 0.002$). Therefore, traditional and somewhat traditional respondents, as expected, had more conservative attitudes towards sexuality and gender than those who were not at all traditional.

- No significant differences in personal attitudes towards sexuality and gender were found to be associated with any of the remaining factors: area of residence, marital status or either parent's level of education.

5.10 Findings for Research Question 10: Personal attitude towards sexuality and gender by media exposure and socialising activities

Research question 10 was as follows: *Is there a relationship of personal attitudes towards sexuality and gender with socialising activities and media exposure (watching satellite TV, smoking cigarettes, smoking sheesha, drinking alcohol, using illegal drugs, seeing photographs, books or films illustrating sexual activity)?*

For each factor, the null and alternative hypotheses are:

H010: There is no relationship of socialising activities and media exposure with personal attitudes towards sexuality and gender.

Ha10: There is a relationship of socialising activities and media exposure with personal attitudes towards sexuality and gender.

Table 5.14 shows the analysis of results relevant to RQ10. The range and polarity of attitude scores are as noted above. The results, including for the two-sample t-test and one-way ANOVA, reveal significant differences in attitude scores related to all of the factors, with the sole exception of watching satellite television, where scores were lower for those who watched than for those who did not, but not significantly so.

Table 5.14: Personal attitude towards sexuality & gender by media exposure and socialising activities

Media exposure / socialising activities		Attitude scores		t-value/ F-value	p-value
		Mean	SD		
Do you watch satellite TV?	Yes	42.5	6.2	-0.44	0.66
	No	43.2	5.3		
Do you smoke cigarettes?	Yes	36.3	6.5	-5.1	<0.0001*
	No	42.9	5.9		
Do you smoke Sheesha?	Yes	37.1	6.0	-5.3	<0.0001*
	No	43.1	5.9		
Do you drink alcohol?	Yes	30.1	6.3	-5.6	<0.0001*
	No	42.8	5.9		
How often have you had occasion to see photographs or books illustrating sexual activity?	Never	44.1	6.5	10.3	<0.0001*
	Once or twice	42.5	5.2		
	3 or 4 times	42.3	4.7		
	5 times or more	39.1	6.3		
How often have you seen films that illustrate sexual activity?	Never	44.6	5.6	17.9	<0.0001*
	Once or twice	41.4	5.2		
	3 or 4 times	39.0	6.9		
	5 times or more	39.1	5.8		

Note: * indicates significance at the 0.05 level.

- Respondents who smoked cigarettes had significantly lower attitude scores (M = 36.3, SD = 6.5) than those who did not (M = 42.9, SD = 5.9), t (334) = -5.10, $p < 0.0001$. In other words, there was a relationship whereby personal attitudes towards sexuality and gender were more conservative in non-smokers.

- Similar differences were found between those who smoked sheesha (M = 37.1, SD = 6.0) and those who did not (M = 43.1, SD = 5.9), t (333) = -5.30, $p < 0.0001$. Again, non-smokers had significantly more conservative attitudes towards sexuality and gender.

- There was an even more marked difference in personal attitudes between respondents who drank alcohol (M = 30.1, SD = 6.3) and those who did not (M = 42.8, SD = 5.9), t (333) = -5.60, $p < 0.0001$. Like non-smokers, non-drinkers had significantly more conservative attitudes towards sexuality and gender.

- Personal attitudes towards sexuality and gender were also significantly related to the extent of respondents' exposure to sexually explicit photographs or books $F(3, 331) = 10.3$, $p < 0.0001$. Respondents with lower exposure tended to have more conservative attitudes. The results of pairwise comparisons with p-values adjusted by Tukey's HSD indicate significant differences in attitude scores between respondents seeing such materials at least five times and those never have seen them ($p < 0.0001$), and between the five-or-more group and those having seen such books or photographs only once or twice ($p = 0.002$).
- Finally, personal attitudes towards sexuality and gender differed significantly with exposure to films depicting sexual activity: $F(3, 332) = 17.9$, $p < 0.0001$. The results of pairwise comparisons with p-values adjusted by Tukey's HSD show significant differences in attitudes ($p < 0.0001$ in each case) between respondents who had never seen such films and each of the other exposure groups (i.e. those having seen them once or twice, three or four times and more than four times). As with books and photographs, lower exposure was associated with more conservative attitudes.

5.11 Findings for Research Question 11: Sources of SRH information

Turning now to respondents' information-seeking behaviour, research question 11 was as follows: *What are students' sources of information and knowledge regarding their SRH?* Tables 5.15 to 5.20 list the data whose analysis is used to answer this question. Table 5.15 shows the responses regarding the person to whom each respondent spoke before or shortly after her first menstruation. The three persons most often specified were the females closest to the respondent, i.e. her mother, a sister and a girlfriend, while other close female relatives were chosen much less often, authority figures (teachers and doctors) rarely and the father almost never.

Table 5.15: Person spoken to before or shortly after menstruation for the first time

Source	Number of times mentioned
Mother	151
Sister	124
Girlfriend	95
Close female relative	43
Teacher	21
Nurse/Doctor	10
Father	3

Table 5.16 presents data on respondents' sources of information on the contraceptive methods they were using. In this case, doctors were the most frequently mentioned source, but a number of others were mentioned almost as often, including four categories of people close to the respondent and in particular, the impersonal source of the internet. It should also be noted that this question elicited far fewer data points than the other questions in this section, since it applied only to those using contraception, all of whom are assumed to have been married. Table 5.1 shows that only 16% of respondents were married.

Table 5.16: Where did you obtain information on the contraceptive method you are using?

Source	Number of times mentioned
Doctor	32
Internet	24
Friends	22
Family members	18
Husband	16
Mother	14
Other	26

Table 5.17 list responses regarding where participants had heard about any of the sexually transmitted diseases and HIV. It is clear that television was the most commonly identified source, while the next three (newspapers, school and friends) were mentioned only about half as often. Direct medical sources, in the form of health professionals and clinics, together accounted for only 12% of responses.

Table 5.17: Where did you hear about any of these sexually transmitted diseases and HIV?

Source	Number of times mentioned
TV	266
Newspapers	179
School	146
Friends	136
Health professional	63
Clinic	63
Radio	53
Poster	53
Mosque	10
Other	51

Table 5.18 presents data on the people whom respondents identified as those they talked to most often about SRH matters. The results are very much in line with those on menstruation discussed above, the four main sources being friends, siblings, the mother and other relatives.

Table 5.18: Who are the people you most often talk with about sexual and reproductive health matters?

Source	Number of times mentioned
Friends	207
Sister/brother	126
Mother	104
Other relatives	59
Physician	38
Spouse	36
Teacher	9
Nurse	8
Father	6
Pharmacist	3
Other	6

Table 5.19 enumerates the responses to the last question in this section on sources of SRH information: *If you had a problem or questions about sexual and reproductive health, where would you go for help?* It is notable that in the context of potential problems, medical authorities (doctors, clinics and hospitals) were mentioned far more often than in

response to the other questions in this section. It is not clear, however, whether this contrast is related to the notion of a problem, or whether the explanation is that this question asks about what respondents would potentially do, rather than what they have actually done in the past.

Table 5.19: If you had a problem or questions about sexual and reproductive health, where would you go for help?

Source	Number of times mentioned
Clinic/hospital	165
Qualified doctor	136
Parents	131
Friends	131
Spouse	39
Teachers	11
Traditional healer	9
Other	78

5.12 SRH information and service needs

Respondents were asked several questions on their information and service needs, to which they responded with evidence of positive views about the need for SRH education. More than half wanted to attend courses on SRH or have them available, whereas over 90% reported never having attended a course on SRH as part of their university education. When they were asked about the information they needed, there were six areas of need which were each identified by at least four fifths of respondents. These were information and classes on different SRH matters, clinics dealing with SRH problems only, information on contraceptives and instructions on usage, information on STIs, antenatal and postnatal classes, and classes on sexual relationships and premarital preparation.

On the other hand, 59% of respondents did not believe that providing SRH information and education would increase the incidence of sexual practice. This has been the subject of

argument in several countries and most of those opposing the provision of sex education programmes appear to believe that this would increase or encourage sexual practice.

5.12.1 SRH information and service needs for married and single students

One of the main study objectives was to explore potential differences between married and single students in regard to their SRH information needs and the types of SRH problems they faced. The research thus makes a contribution to knowledge, as it is the first time that any study has explored this area. However, the scale of this contribution is limited in two ways: relatively few questions addressed this aspect and far fewer married students than single ones participated in the study. Table 5.20 shows responses to questions about SRH problems in terms of the percentages of married and of single respondents giving each response.

Table 5.20: Types of SRH problems experienced, by marital status

SRH problems	Married %	Single %
Unwanted pregnancy	4.7	–
Sexually transmitted disease/ infection	0.8	–
Urinary tract infection	3.8	10.7
Premenstrual tension	1.1	20.5
Vaginal itching and burning	3.6	–
Excessive vaginal discharges	1.6	20.3
Pain during intercourse	3.6	–
Low sexual desire	1.4	–
Fertility problems	0.5	–
How my genitalia look	–	11.0
Hygiene	–	15.3
What is the hymen?	–	19.2
Will I lose my virginity if I play a sport or ride a horse?	–	17.8

Only 4.7% of married respondents reported experiencing an unwanted pregnancy. When asked if they had any SRH problems, only 6% of them answered “Yes”. These occasional problems included urinary tract infections, pain during intercourse and vaginal itching and burning, all mentioned by fewer than 4% of subjects. One in ten said that they had not

sought any medical help or advice for their problems, while among those who did ask for help, the most common source of that help was private clinics, at 7.4%.

As Table 5.20 shows, a larger proportion of single respondents than married ones mentioned certain problems or concerns. In total, 36.2% of single respondents reported experiencing SRH problems or concerns. This may be due to the fact that more than four fifths of respondents were single. The most commonly identified concerns were premenstrual tension and excessive vaginal discharge, mentioned by a fifth of respondents. A similar number said that they would like more information about the hymen, almost as many were concerned that horse riding could result in a loss of virginity and 11% were concerned with the appearance of their genitalia. Less than a fifth stated that they would seek medical help for their problems, while almost two thirds would not. Like the married group, the single respondents were most likely to seek help (if at all) from private clinics (14.5%).

5.13 Responses to open-ended questions

Section eight of the study questionnaire, on information-seeking behaviour, included three open-ended questions, asking respondents for their suggestions for SRH services they needed or that should be provided to women in Saudi Arabia. They were also asked what kind of SRH information they would like to find on the internet or had searched for online. In section ten, respondents were asked to list any SRH problems that they had ever faced. Finally, at the end of the questionnaire, respondents were invited to make suggestions for the research and to ask any questions reflecting their concerns.

Note that responses were made in writing on the questionnaire response sheet and are reported here as direct quotations after translation into English.

5.13.1 Summary of responses to open-ended questions

Only Thirty-six participants provided comments regarding the survey this should be taken into consideration during the interpretation of these results. They ranged in age from 19 to 34 years, with an average of 23.67 (SD = 4.08). The other specific demographics for the 36 participants are as follows:

- 24 studied at a state university and 12 at a private university.
- 30 studied for undergraduate degrees and six for postgraduate degrees.
- 16 resided in East Riyadh, two in South Riyadh, 12 in North Riyadh, one in West Riyadh and four outside Riyadh.
- 15 majored in social sciences, 13 in sciences, five in medicine and two in religious studies.

The responses can be grouped into three categories: SRH problems, information needs, and SRH questions and concerns.

5.13.2 Sexual and reproductive health problems

Menstruation problems were identified as a concern by three respondents, whose answers included *"premenstrual syndrome"* and *"pain during menstruation"*.

Two respondents raised the issue of masturbation. Although this is not a large number of responses, it is worth noting that masturbation was mentioned, since it is a controversial issue. References to it included the phrase *"problems and consequence of frequent masturbation"*, which must be seen in light of the fact that in Saudi Arabia this practice is neither socially nor religiously acceptable or allowed.

A further two participants mentioned other problems that worried them, stating that they did not know why something was happening to them or what it was, an example being

"excessive vaginal discharge among singles [i.e. unmarried females]". A related problem was that when they tried to search for an answer to such questions, family disapproval and social barriers restricted their search for information. Thus, one respondent referred to *"looking for information in unreliable sources and channels because family restricts us and we don't know where to get this information from".*

5.13.3 Information needs

Ten of the written responses referred to the need for SRH education for all. Respondents suggested that education should be provided for young people at school level within the culture, respecting Islamic rules and teaching. It was also recommended that couples should receive instruction before marriage to help in preparing them for their first sexual experience and to avoid SRH problems in the future. The most general of these comments was:

> *"Provide SRH education to young people."*

Several respondents (25) stated that the community should be part of this effort and support any SRH initiatives or programmes, because without the support of the community and religious leaders their success rate and sustainability would be very low.

> *"Provide SRH education at school level for males and females because there is huge misunderstanding and confusion around these issues. In addition, the lack of education in our community is not helping, even though these are not taboo or forbidden topics anymore."*
>
> *"Make the community more aware about this so we should educate them and make it more acceptable."*
>
> *"Provide compulsory courses on issues related to SRH and preparation for couples before marriage."*
>
> *"Educate men about this. They need to be knowledgeable as well, especially about virginity and it's not everything."*
>
> *"Include sex education in the school curriculum."*

"Again premarital courses explaining sexual relations? Foreplay, orgasm, positions, and all the issues related to sexuality and sexual health satisfaction between couples."

"Antenatal courses for couples, especially first-time parents."

"Education at schools on puberty"

"Provide sex education to all ages, even kids, and it is not against Islamic culture or beliefs. We should educate parents as well and inform them about these topics, conforming with our Islamic teaching and our tradition, so we can get rid of the idea that sex education is a threat to our children."

It was also noted by 20 students that premarital courses should be provided.

"We need premarital courses."

"A compulsory premarital course, similar to the premarital screening to improve general public knowledge and spread the word"

"Premarital courses and guidance. This is a very important way to prevent divorces."

In addition to providing formal SRH education, participants also suggested that information regarding SRH knowledge should be distributed and made available.

"Producing educational materials on these topics and distributing them."

"Access to information when we need it."

"Information on sexual contacts"

"Preparing girls before puberty and providing them with information on body changes during this period of their life."

"Masturbation and its risks"

"Provide detailed information about sexually transmitted disease for males and females. It's important to know what the symptoms of these diseases are and how to prevent them."

"Information on SRH for all, especially married women, because they need it more than the singles, who are not sexually active. That will help them to have better sexual health."

5.13.4 Questions raised

Participants also raised a number of questions of concern. These could serve as reference and a basis for recommendations when providing information or courses regarding SRH education or promotion programmes. There is a vital need for such information for any organisation or individual planning to introduce SRH services for young females. These are considered to represent a small part of their information needs and from small number of students and we need extend research in this area to gain better insight into students' information needs.

> *"Information about virginity. How do I know I'm a virgin?"*
>
> *"Menstruation disorder – why is it happening"?*
>
> *"Religion and sexuality. What are the religious rules and regulations related to sexual health?"*
>
> *"Virginity"* [again].
>
> *"Can a virgin become pregnant if she uses a public swimming pool?"*
>
> *"Can I exercise during my period?"*
>
> *"Effect of masturbation on virginity."*

To sum up from this small analysis, respondents identified a need for SRH information and services, making suggestions for including such material in the education system or as specially designed courses before marriage, similar to the initiative of premarital examination.

There was a notable and repeated concern with the issue of virginity, which is considered a vital and extremely important matter for all women in Saudi society. For a woman in this conservative society, the loss of her virginity can be extremely destructive and could put her life in jeopardy.

5.14 Key findings and observations emerging from this study

The preceding section has analysed textual responses to the open-ended questions in the survey. This chapter now concludes with a general summary of some of the important findings from the study as a whole.

- On the whole, most female university students surveyed had some knowledge of STI transmission and symptoms, of contraception and of HIV/AIDS. However, this knowledge was superficial and might not help the respondents, nor translate into behaviour change or the seeking of healthy sexual and reproductive behaviour.
- Respondents frequently cited their friends and the media as sources of information on SRH. This finding should be considered in the planning and design of education programmes. Research should be instigated to discover why educated females go to their friends for such information.
- It is not common for this young group to communicate with their parents on issues related to sexual health.
- Female university students in both private and governmental have and reported limited access to SRH information.
- A number of misconceptions, myths and fears were identified among this group of young, educated Saudi females, raising the possibility that these may exist to an even greater extent among illiterate women or outside the academic environment.
- Strong traditional and cultural beliefs can sometimes have negative effects on women's sexual and reproductive health.
- It was found that married respondents had more knowledge than single ones.

- The first potential source of help specified by both single and married students was private clinics.
- The majority of respondents urged the provision of SRH courses or programmes for all, believing that this would not encourage increased sexual activity.
- A positive relationship was found between watching sex-related films and level of knowledge. This finding raises the interesting question of whether the relationship is causal and if so, how such exposure might actually improve knowledge in this area. Further research is desirable in order to learn more about this relationship.
- Smoking, drinking, studying at a private university and watching films that illustrate sexual activities were all found to have a positive association with the level of knowledge and to be associated with more liberal attitudes to sexuality.
- Masturbation was frequently mentioned by participants, who asked about its risks and effects. It is interesting that even in a closed and conservative society, females engaged in this behaviour and reported it. This raises the need for more research to investigate the sexual practices of Saudi women and to ask questions that no one has wanted to ask.
- Virginity was a significant concern. Some participants feared that they might lose their virginity by taking exercise or riding a horse, while others wanted to know how they could be sure whether they were virgins.
- It is notable that considerable gaps in knowledge still exist on many issues. For example, this study did not cover all aspects of women's SRH or related knowledge.
- Finally, the brevity of some parts of the study does not mean that these areas are less important than others; rather, it indicates a lack of information.

Chapter 6

Neither insider nor outsider: Reflections on the researcher's identity

6.1 Introduction

The issue of classifying the researcher as an 'insider' or 'outsider' to the community studied has long been the subject of extensive discussion, especially among qualitative researchers. Recent contributors have tried to move beyond this simplistic dichotomy to consider the researcher's identity and social position (Kerstetter, 2012). Most of the time, qualitative researchers enter communities in various ways, by taking advantage of either their association with a university, their research knowledge and skills, their socioeconomic status or other traits, which allow them to enter the community. Characteristics like race and access to resources may give them privileged and influential status in the society studied.

Watson (1999) and Armstrong (2001) argue that being a member of the group studied does not always influence the process in a negative way. Indeed, there are benefits to the researcher of group membership, although Fay (1996) asserts that it is neither necessary nor sufficient.

As to outsider researchers, Drew (2006) vividly likens them to seagulls: they fly in, "craps all over everything then leave the community to tidy up the mess" (p. 40). Similarly, Gerrard (1995) compares outside researchers, who descend into people lives and then fade away, with insider researchers, who are often defined as being intimately engaged with their research spheres. But insider researchers are often challenged with ethical and methodological issues, as well as struggling to balance their roles as insider and researcher (DeLyser, 2001; Gerrish, 1997; Kanuha, 2000).

This chapter considers the positions of researchers and community stakeholders as insiders, outsiders or something in between, and the influence of their status on research outcomes. Taking the current research as a case study, it considers the obstacles and hindrances facing the researcher in her relations with academic and university partners involved in this research, how they marked the researcher as an outsider and the impact of this on the research.

6.2 Impact of the researcher's status on the research process

This section discusses the role I adopted for my PhD research and my experience of being marked as neither insider nor outsider. When I began discussion of my research, I became aware of factors which made me an outsider from the perspective of the administration of the universities whose members were to be my subjects. First, I was doing my PhD at a university outside the country; I had obtained my master's degree outside the country, so had spent a long period in the West; I was researching a sensitive topic, labelled as taboo and inappropriate for such a conservative Muslim community; I was not a student or employee of any of these universities; and I had no connections or relations within them. These distinguishing features became much more obvious when I started the data collection. I became much more aware of my status as an outsider researcher when administrators and some participants asked me pointedly whether I was a Saudi citizen. Despite all this, I considered myself to be neither an insider nor an outsider in the context of my PhD research.

The focus of this chapter, however, is neither the researcher's relationships with participants nor with the universities involved, but her identification with the population, which did affect the research process to some extent. To clarify, I will discuss my role in the research, including personal experiences that made me consider myself to be 'in the

middle', and demonstrate how this role influenced my access to information, the collection and analysis of data and the maintenance of research rigour.

6.3 My role as researcher

In undertaking the research, I acknowledged that my experience of working for five years as a health educator in a women's clinic in Riyadh had influenced my decision to research Saudi women's knowledge and awareness of their sexual and reproductive health. Further, I acknowledged that my choice of research topic was influenced by my experience of working with women who often suffered in silence and constantly searched for information and answers to their sexual and reproductive health issues.

I started by searching for prior research and found nothing on this particular topic. There was a significant emphasis on reproductive outcomes, such as pregnancy, birth and related medical conditions, but nothing touching women's needs, their level of knowledge or their information sources. I then sent email enquiries to some former professional colleagues, mostly obstetricians and gynaecologists. The few who replied were discouraging, advising me that this was neither an acceptable nor a necessary topic to research in our community; indeed, it was not allowed in our Islamic society.

I now began to wonder about the degree to which these views and findings would relate to how social norms and values can restrict research in such a community. I wondered whether the study findings would benefit or change views on researching sensitive topics in my society and I became concerned with this possibility. Consistent with my contextual line of thinking, I chose to explore this topic, despite the difficulties I might face, anticipating that my research would have practical implications in service design and delivery and access to information for women in Saudi Arabia.

6.4 Data collection

As expected, I found that the recruitment of students as participants in my research was difficult, because of the research topic and context. First, I struggled to gain access to the appropriate research sites, female university campuses in Saudi Arabia, facing repeated refusal and rejection of my research, especially when administrators saw the proposed title. The majority did not gave clear reasons for their refusal, while others made it clear that such research could not be allowed in their institutions, which in my view indicates that they were concerned about the effect that the dissemination of the results might have on their universities' reputation especially the questionnaire asked about some habits such as; smoking and using drugs. Every morning my driver takes me to the universities and drop me off, then come back when I finish my research, due to absent of public transportation in Saudi Arabia I was totally depended on my driver or the "family driver" during my data collection, on the other hand, in Saudi university students usually required to wear skirt and shirt (preferable white one) except for private universities the administration are not strict in terms of the dress code for the students. Thus, I followed the rules and wearied skirt and shirt when I visited the universities with my roller bag and questionnaires plus, I wanted the students to see me as insider. I usually targeted the busy areas in the universities such as the canteen, the waiting area where students waited for their cars after they finish their study day, the study areas and students lounge. First, I introduce myself to them asking them if they are interested in participating in the study? I hand them the information sheet asking them to read it carefully and inform me if they want to be part of this study.

I had originally believed that I would be seen as an insider, being a university-educated Saudi female, and that this would be a trump card in my attempts to recruit universities, but

this was not the case. Only four of the 13 universities in Riyadh granted me access. I thus became aware that these university administrators saw me as an outsider.

The data collection itself was most directly affected by my status in the eyes of potential participants. When distributing questionnaires to students, I believe that my age was of greatest benefit; the students tended to see me as an insider because my age was similar to theirs, so they saw me as close to them, as someone who knew their problems and needs, especially when we discussed issues related to the research topic, when some students were also motivated to ask questions. This helped me somewhat to gain their trust, but it did not help enough for me to reach my target number of recruits.

6.5 Data analysis

Insider researchers are criticised for being advocates rather than 'real' or 'legitimate' researchers (Bonner & Tolhurst, 2002; Kanuha, 2000) in ways that enhance the depth of understanding of the population being studied; thus, questions about the objectivity and reflexivity of a research project are raised. Indeed, being 'in the middle' made it easier for me not to question the results, because I was neither inside nor outside the research.

6.6 Conclusion

While it is rare for researchers to discuss openly their position in their research, it is often seen as having the potential to undermine the legitimacy of both research and researcher (Ellis & Bochner, 2000; Langhout, 2006). This paper has highlighted the extent to which my 'in-between' role in this research influenced all aspects of the research process, especially access to informants and data collection.

One view suggests that all researchers are "inside what we are studying" (Ellis & Bochner, 2000, p. 743). In the context of my research, being positioned as neither an insider nor an outsider was challenging, because I was an insider to my research. I immersed myself in

the research environment and I was able to do so because I felt myself to be an insider, which reduced the likelihood of being seen as a ‘seagull’.

The final chapter, which follows, discusses the research findings, draws conclusions and makes appropriate recommendations for further research and for the relevant authorities.

Chapter 7

Discussion

7.1 Introduction

The aim of this study was to explore the areas of sexual and reproductive health knowledge, attitudes and information-seeking behaviour among female university students in Riyadh city, Saudi Arabia.

Because sex and sexual health are considered taboo topics in Saudi culture, sex education has always been ignored by both the educational and health sectors, so that there is nothing called a sexual health education programme or a sex education curriculum in schools or even universities in Saudi Arabia. The political and societal resistance to any discussion of sexual health issues or sex education programmes has meant that these issues have usually been avoided in such a conservative community. It is therefore timely that the present study should investigate them. This thesis has explored and identified the sexual and reproductive health-related knowledge, information-seeking behaviour, attitudes and needs of Saudi female university students, examining the associations between knowledge level and a range of socio-demographic factors, including socialisation activities and most notably marital status, which has rarely if ever been investigated in studies of this kind. It is hoped that this exploratory study will provide the basis for further research into the sexual and reproductive health of Saudi women.

SRH knowledge varied widely among participants, with many holding serious misconceptions. This study has revealed that respondents perceived a need for sex education courses and programmes, currently missing from their curricula. Moreover, female university students in Saudi Arabia were found to have poor knowledge and

awareness of various aspects of their sexual and reproductive health; for example, almost 70% believed that women could become pregnant through kissing or touching, while fewer than two percent knew that pregnancy could occur during midcycle. Knowledge of contraceptive methods and sexually transmitted diseases were found to be better than this, but only slightly so: for example, 61% and 66% respectively of the sample did not know what female and male sterilization were. Only 5.5% reported knowing none of the STIs and only 3% did not recognise or know any signs or symptoms of STIs. Interestingly, 20% of students thought that kissing can transmit STIs including HIV, 18.9% believed that HIV can be transmitted through mosquito bites and 25.8% believed it can be transmitted by sharing food with an infected person.

When participants' level of general sexual health knowledge was examined by type of university, level of study and marital status, it was found that overall, 84% had a poor level of knowledge, this proportion being higher among undergraduates and among those who had never been married, and slightly higher among students at private universities. Thus, being single, studying at a private university and at undergraduate level all appears to contribute to participants' low level of general SRH knowledge.

The following section compares the findings of the present research with those of other studies reported in the literature, especially those conducted in MENA countries. Sections follow this on strengths and limitations, general conclusions and recommendations.

7.2 Comparisons with the literature

7.2.1 Poor SRH knowledge

The poor levels of knowledge reported above are consistent with the results of other studies conducted in Iran, Lebanon, China, Turkey and Egypt, where university students also showed low levels of awareness in these domains and appeared to be subject to similar major misconceptions (Simbar et al., 2005; Barbour, 2009; Chen et al., 2008; Zhang et al., 2010; Yilgor et al., 2010; El Gelany and Moussa, 2013). In Milani and Azarghashb (2011), only 55.8% knew that the probability of pregnancy after sex was related to the menstrual cycle. While, El Gelany and Moussa (2013) found that 20% of respondents did not know the meaning of the word 'pregnancy', 45% had incorrect knowledge of the fertile period there is a notable similarity of context between some of these studies and the present research, in that culture, religion and taboo were found to inhibit discussion of these topics. In other (non-MENA) contexts, some similar findings are reported as to women's level of knowledge regarding their SRH. For example, Fletcher and Bryden (2005) compared women in Canada who had had a Pap test with those who had not and found that the overall level of knowledge about the test was inadequate among both groups. Similarly, in a qualitative study in Malaysia, Wong et al. (2009) found that women lacked knowledge and awareness of cervical cancer and the Pap smear test; one of the reasons reported for not participating in such screening was lack of awareness.

As to research findings on HIV knowledge, Bozicevic et al. (2009) found that women in Croatia had poor knowledge of HIV transmission modes. They report that two thirds of their sample thought that HIV could be transmitted by mosquito bite and three quarters by sharing food with an infected person, compared with only about a fifth and a quarter of respondents respectively holding these false beliefs in the present study. In addition, 84.5% knew that using a condom can protect against HIV and 81.1% believed that having sex

with only one partner would offer this protection similar finding reported in the systematic review where, Ganczak et al. (2007) report that 5.4% thought that a person could catch HIV from a mosquito bite and 20.9% did not know that it could be caught from unprotected sex with a carrier. In contrast, findings on women's risky sexual behaviour indicated that 52.4% said that they had used a condom the first time that they had had sexual intercourse, while 53.9% reported unprotected sex on their last sexual intercourse. This reflects a gap between women's knowledge of condom use and their actual use. Similar finding are reported in China (Lu et al., 2012; He et al., 2009). All of these studies had findings similar to those of the present research, indicating poor or inadequate knowledge of HIV among women.

The findings of the present study regarding women's poor knowledge of their sexual health were thus similar to those of previous studies. This also applies to contraceptive knowledge, where participants' level of knowledge varied. The level of knowledge of contraceptive methods was higher among married students than among single ones, which was expected, given that the former were much more likely to use contraceptives. It was also unsurprising that undergraduate students had poorer knowledge than graduates, but an interesting finding was that more students at private universities (52.3%) had good knowledge of contraceptive methods than at state universities (39.7%). Participants were also asked about their familiarity with various methods of contraception, which was generally high, the most notable exceptions being for female and male sterilization, with which only 15.6% and 11.2% respectively claimed to be familiar. This is consistent with findings from the review in MENA countries where very few (2.8%) of students in the Barbour and Salameh (Barbour & Salameh, 2009) study had never heard of a condom, 54.7% had never used one and only 47.5% knew that they were disposable. A further 2.1% did not know about oral contraceptives, 42.7% did not know there were different types and

35.1% did not know how to use them. (Barbour and Salameh 2009; Tehrani, Farahani, & Hashemi, 2001) and with those of Schrager and Hoffmann (2008), who surveyed American women to explore their level of knowledge of different contraceptive methods. By contrast, Takkar et al. (2005) found that in India, women working in hospitals were generally highly knowledgeable about contraceptives, that 81% had used them and that 73.3% did so regularly.

A possible explanation for the low levels of SRH knowledge of all kinds found in the present research is this: since very strong taboos persist in Saudi Arabia concerning sexuality and sexual practices, young people remain largely ignorant of their bodies and issues related to sexual health, especially concerning the risks associated with unprotected sexual acts.

7.2.2 Marital status

The present research identified some interesting differences between single and married students in regard to their SRH problems and needs. Marital status is a factor that appears not to have been investigated in other studies, so this research has broken new ground by identifying and exploring this issue. When asked if they had any SRH problems or concerns, only 6% of married students answered that they did, compared with 36.2% of the single ones. Given that there were far fewer married respondents (16%) than single ones (84%) in the sample, this result can be seen to reflect a significant need on the part of a total of almost a third of these young women for information and education on their SRH. The problems reported by married participants included urinary tract infection, pain during intercourse and vaginal itching and burning. Among the problems and concerns mentioned by a larger proportion of single students than married ones, the most common ones were premenstrual tension and excessive vaginal discharge, mentioned by a fifth of single

students. A similar number said that they would like more information about the hymen and virginity.

Young Arab women, including Saudis, have limited opportunities to advocate for their rights and are excluded from decision-making and from pursuing their sexual and reproductive health rights. The priorities and attitudes of the community thus serve as obstacles to these young women's adoption of healthy sexual and reproductive lives. This has the major effect of further marginalising those who become pregnant at a young age or while unmarried, which in turn will tend to be greatly injurious to their health and that of their children, as discussed in Chapter 1.

This research has provided evidence of unmet SRH knowledge and healthcare needs among young Saudi women studying at universities in Riyadh, particularly among the unmarried study participants, although married women were also found to have unmet needs. The systematic literature review (Chapter 2) supports these empirical results and confirms that the needs of this group are far from having been fully addressed. The culturally influenced reluctance to discuss women's SRH appears to compound the ignorance of young women themselves and this is reflected in the inadequate provision of information and services for both married and single females. Young female university students reported that they lacked reliable sources of the most basic SRH knowledge, including information about the development and changes undergone by their own bodies.

7.2.3 Associated factors

By applying multiple logistic regressions, the present research has identified a number of factors statistically associated with the low level of SRH knowledge among female Saudi university students. More specifically, the findings demonstrate that being single, studying at the undergraduate level, never, once or twice having seen photographs or books

illustrating sexual activity and not obtaining information on SRH from one's parents are some of the factors contributing to this low level of knowledge.

7.2.4 Parents and other sources of information

An important finding of the present study is that students reported sex-related communication with their parents to be poor and the majority stated that they had received no information or education from them in one or more areas of SRH. More than half had learned nothing from their parents on sexual relationships between men and women, on sexual and reproductive systems or on contraception, while a quarter had learned nothing from them on bodily changes and more than ten percent on menstruation. These findings appear broadly consistent with those of other studies in MENA countries and elsewhere; for example, in response to a survey in Algeria, 73% of young females reported they had learned about changes to their body and puberty on their own, not from their parents (Sheppard and DeJong, 2005). Similarly in the systematic review, the percentages reporting use of the family vary from 5% in El Gelany and Moussa (2013) to 53% in Ege et al. (2011). The results suggest that mothers were used as sources of information more than fathers in the one study to report both (Yilgor et al., 2010).

DeJong (2007) argues that the reason for this poor communication on sexual matters within Middle Eastern families is the fear on the part of young people that if they attempt to raise SRH issues, their parents will assume that they are engaged in sexual relationships; therefore, they do not seek such information from their parents. In contrast, in a different cultural context, a questionnaire study of Scottish teenagers in Edinburgh found that many stated that they "definitely would not" talk to their parents about sex. The proportion ranged from 19% to 65% of participants, depending on the topic, the main reason given being a feeling of embarrassment arising from discussion of these issues (Ogle et al., 2008). Indeed, several contributors to the literature note that the problem is not exclusively

caused by the parents themselves, as young people's unwillingness to discuss sexual matters with their parents (for any reasons) can worsen the situation.

In addition to measuring knowledge of three dimensions of SRH (sexual health, contraceptives and of STIDs/HIV), this doctoral study collected data on participants' sources of information on SRH. More than half reported discussing SRH issues with their friends, while on STIs/HIV, almost three quarters said that their first source of information was the television, followed by more than a third who identified their friends as a main source of such information. These findings are in line with those of earlier studies reviewed; two studies (El Gelany & Moussa, 2013; Yapici et al., 2010) identify the media as sources, with low rates of use, under 20%. Friends are cited as a source of information in all studies and the results vary from 15% in El Gelany and Moussa (2013) to 44.3% in Ege et al. (2011). Also in Iran, Homaee, Sobhani-Nejad et al. (2005) asked 490 college students about their sources of information on sexual health and found that the main sources reported were films, satellite TV and the internet, while friends were the next most important source of information, especially about sex.

This finding reflects the importance of friends as sources of information and suggests that this source could be useful in education programmes; thus, the peer education method might be more effective than some of the alternatives. This is a key finding and should be taken into consideration in any attempt to establish SRH promotion programmes; it suggests that peer education could be used in schools, universities and the media as part of any education campaign. An outstanding example in this field is considered to be Tunisia, where the Double Protection project aims to prevent sexually transmitted diseases and unwanted pregnancy among university students through peer education (DeJong, Shepard, Roudi-Fahimi & Ashford, 2007).

Since participants in the present study report using peers, the media and the internet as sources of information, these channels should be utilized to spread SRH awareness in Saudi Arabia.

7.2.5 Culture, religion and taboo

The findings of many studies reviewed in this thesis are consistent with the finding of the present study that while young Saudi females have an evident need for information and knowledge regarding SRH, there are marked effects of culture, tradition and the taboo surrounding this topic which restrains women from gaining knowledge and seeking help.

The pattern is similar in Pakistan, where according to Hennink et al. (2003), young women reported that the information they usually received was limited to matters of personal hygiene during and after menstruation and to the social and religious changes that women were expected to undergo after menarche, whereas important aspects such as physical changes and both biological and emotional development were ignored. The influence of religion and culture meant that most families considered marriage to be the crucial point at which it was appropriate to provide SRH information to young women, to whom the provision of information on sexual relationships was thus not permitted until the time of marriage or immediately before it. Most young women therefore reached this stage without receiving much if any information on SRH; and when they did receive it, the source of information was often not the parents but other family members such as married sisters, sisters-in-law or aunts.

These problems have common roots and these results indicate that in a closed society where students still live in extended families, they are likely to use their friends, rather than their families, as sources of information on sexual issues. Social norms, taboos and fear of stigmatization may be the reasons for this, as mentioned above. Hennink et al. (2003)

report that young women identified the taboo surrounding sexual topics in their culture and the restrictions on discussing these topics with anyone. These findings are in line with those of an Iranian study (Shirpak et al., 2008**)** which found that cultural and social norms restricted access to SRH-related information and knowledge.

Interestingly, these factors also appear to play a role in the information-seeking behaviour of members of ethnic minorities in the UK, in their relationships and in their access to services. (Beck, Majumdar, Estcourt, & Petrak, 2005) refer to the influence of "a version of Bangladeshi identity suggesting that spiritual values, shame and stigma form barriers to sexual healthcare access" (p. 61). Similarly, Sinha et al. (2007), conducted study among Black and minority ethnic (BME) teenagers in East London and suggest the following:

> Culture, gender, religion and youth influence teenagers from BME groups in aspects of sexual relationships in multicultural East London, and […] these social markers may have different meanings for individual young people. This adds complexity to the patterning of risk and protection, and emphasises a need for the flexible delivery of sexual healthcare. (p. 438)

7.2.6 Sexuality, gender and virginity

As to differences between the genders, the literature shows that males are more likely to report sexual activity or practices than females are. This is a finding of several studies conducted in the region and around the world. One such study was recently carried out in Saudi Arabia in a similar setting to the present research, but among male university students: Raheel et al. (2013) asked 225 male university students about their sexual practices and state that 31% of the sample reported engaging in a premarital sexual relationship at least once. The factors associated with such practices were travelling abroad, using illegal drugs and watching pornographic films. The present study also found that a significant factor associated with a higher level of SRH knowledge was watching films, although not specifically pornographic ones. It must be emphasised that no causality

is implied; further research is needed to explore the mechanism of any relationship between exposure to such material and SRH knowledge and behaviour.

Interestingly, there appears to be a gender asymmetry here in a set of moral standards which imply restrictions on women's sexual activities while giving men licence to engage in promiscuity and a simultaneous but contradictory right to demand and expect a virgin wife. Other literature reports similar findings, including Mohammadi et al. (2001) in Iran and Jordan. However, this is a curious finding which needs further investigation in Saudi Arabia, where sexual practices outside marriage are illegal. A possible explanation concerns an imbalance in gender roles and behaviour, whereby males are apt to be ostentatious and immodest, wanting to be seen as outgoing risk takers, whereas females are always more cautious and reluctant to report such behaviour, for fear of the consequences, including the disapproval of society and family, and punishment. Another explanation for these conflicting results could be that the questionnaire was self-administered; therefore, students felt free to report their beliefs and actions more candidly.

An important objective of the present research was to identify the perceptions of Saudi female students regarding sexuality, gender and virginity. Around four fifths of participants strongly agreed that girls should remain virgins until married and a similar proportion saw it is as socially very unacceptable for women to have sexual relationships before marriage. This issue was raised several times in response to the open-ended questions and during informal discussion with some students; it was one of the first things that they wanted more information on. It appears that an obsessive concern with the religious significance of the hymen and with the consequences of losing one's virginity in the conservative Saudi society exposed many women to serious mental tension, depression and anxiety. They appeared almost to value the hymen above life itself, because losing it would, for an unmarried woman, mean losing her life. As noted earlier in this thesis (e.g.

Chapters 1), a culture of shame and honour is the norm in Saudi Arabia and most other MENA countries, where girls are brought up under the close supervision of the family and where any misconduct or misbehaviour on the part of a daughter will be seen as bringing shame and dishonour on the whole family. In most Muslim countries, chastity and modesty are highly prized, and much more so among women than men, according to Metz (1993), so that when students in their research were asked about gender equality in regard to sexual freedom, the females were willing to grant males more freedom than females. When Ege, Akin et al. (2011) asked a similar question in Turkey, more than three quarters of students though that young men should have sex before marriage, while contradictorily, an even larger proportion agreed that it is important for young females to be virgins before marriage Similar findings are reported from Malaysia by Zulkifli and Low (2000).

7.3 Strengths and limitations of the study

This study has explored the knowledge and behaviour of both single and married students, making this distinction for the first time in such research. It is also considered the first of its kind to study Saudi women's SRH knowledge, information-seeking behaviour and information needs.

The study used a questionnaire to explore areas of Saudi women's SRH. This cross sectional survey was useful to provide an overview of health related knowledge, views and practice and provide a baseline for future research. One of its strengths is that quantitative findings from closed questions were enhanced by the small amount of qualitative data elicited by open-ended questions and boxes for free-text responses that were included in the questionnaire, which provided some insight into the various kinds of problems and needs affecting the participants. Students raised several issues, which they needed or wanted to find more information about. Only by talking to people who are directly affected can a researcher form a complete picture of their problems and needs, which also happened

during the course of data collection by talking informally to students and responding to some of their questions, although these conversations were part neither of the results nor of the study methodology.

Turning to the reliability of the questionnaire used in this study, first it was based around three scales that had been used in previous studies (Farahani, 2008), a sexual and reproductive health survey in Turkey (Population Association & UNFPA, 2007) and a study conducted in Iran (Mohammadi et al., 2006). These were the best scales available, but despite contacting the authors, limited information was obtained about the validation and psychometric properties of these scales (see description in Section 3.12.1). So although using scales form earlier studies strengthened the comparability of findings from this study, lack of information about the reliability of the original scales is a weakness for work based upon them. A related weakness is that while the source questionnaire containing the three scales used in this study (Farahani, 2008) was reported to have an overall Cronbach's alpha score of 0.7 (measuring the internal consistency of the scale; matching the recommended minimum acceptable level of 0.70 (Nunnally 1994), but not a high alpha score), Cronbach alpha scores for this study's Arabic questionnaire and its subscales scales were not calculated.

Good practice was observed in producing the Arabic questionnaire for this study. The questionnaire in English was translated to Arabic by two professional translators, and then back translated to English. The Arabic and English translations were reviewed by the bilingual researcher to ensure the meaning and the wording were preserved. In addition, over 15 experts and specialized personnel in the area of SRH in Saudi Arabia (public health specialists, obstetricians and gynaecologists) reviewed the questionnaire. They were asked to evaluate critically its overall clarity and content. They found the questionnaire satisfactory: some changes in wording were suggested and implemented. Nevertheless the

content of the questionnaire was dominated by the content of the scales used in earlier studies; this may have affected the content validity of the questionnaire.

Possible concerns about the content validity of the questionnaire and the coding of responses focus on the scale relating to STIs, which may now be a little, dated (see Section 3.11 and scoring scheme in Appendix 11). For example the scoring marks the answer that STIs have no symptoms as incorrect, yet women can have STIs without having any symptoms. This should be taken into consideration in the future and when designing any new scale or similar scale.

This was a small-scale study conducted in a single city as part of a PhD programme; therefore the results may have limited generalizability. Whilst the inclusion of participants from two governmental and two private universities mitigated one possible area of selection bias, other forms of selection bias may compromise the generalizability of the findings. In particular, since the respondents were all recruited in the capital city, it must be borne in mind that their knowledge, attitudes, information and behaviour may well diverge from those of students elsewhere in the Kingdom, especially in rural areas. The participants were all university students. The views of this well-educated group may not reflect the views of other Saudi women in general. Furthermore, a proportion of the study sample was from Medical School and this fact raises the question of whether their SRH knowledge and access to information would be better than the rest of the students. This could introduce bias to the study and has been listed as one of the study limitations as no sub-analysis has been done for this group to test this possibility.

The approach in this study where data was collected away from male dominated surroundings was a pragmatic matter. Saudi society is male dominated. The freedom of women is always restricted and women cannot convey their opinions and views freely in

mixed contexts. Women's universities provide a (more or less) safe space for some women to express their views. Consequently, female university students were invited to participate in this study in the university environment because this afforded the opportunity of answering the questionnaire by themselves without male supervision or control. This was considered to offer study participants the maximum opportunity to express their views and answer the questions without fear or concerns. The high response rate and extensive data provided by participants can be argued to signal that this pragmatic strategy worked well. Nevertheless it introduced the selection biases acknowledged in the previous paragraph. On the other hand, this choice and the restriction of data collection to a self-administered questionnaire may have minimised social desirability bias (van de Mortel, 2008).

A final strength of the study is that notwithstanding the sensitivity of the topic and the difficulties the researcher faced during data collection, the study attained a very good response rate of 89%.

7.4 Conclusions

Saudi female university students demonstrated little knowledge of SRH but relative openness towards sex-related matters. The majority of participants preferred to discuss sexual matters with their friends or to use the media to obtain such information. These findings, along with the rapidly changing lifestyle of young people in Saudi society and the ever-easier accessibility of information through the broadcast media and the Internet, point towards the urgent need for a comprehensive sexual and reproductive health education package, especially for this young group. The distinction made in this research between single and married respondents allows the conclusion that the former have particularly strong needs in this area.

We should acknowledge the limitations of this research and interpret the results cautiously, because Saudi Arabia is considered a very conservative country. Nevertheless, the findings of this study provide fundamental information concerning Saudi women's SRH knowledge and needs. Although a number of studies into women's sexual and reproductive needs and problems have been conducted all over the world, there is a dearth of information regarding SRH knowledge, attitudes, behaviour and information-seeking among women in Saudi Arabia in particular.

This study has attempted to explore these aspects of SRH as they concern young Saudi women. It is thus unique in that no previous study conducted in Saudi Arabia has focused directly on women's SRH knowledge and attitudes. It is also significant for Saudi policymakers such the Ministry of Health, the Ministry of Education and other agencies with a special interest in women's health, offering evidence which can be used to enhance SRH services and sexual health education programmes for women in Saudi Arabia. Furthermore, this study can be considered a valuable platform for other researchers in the area, serving as an example of the experience of researching sensitive topics and exposing some of the problems and concerns likely to arise during the course of such research, as discussed in previous Chapters, thus guiding future researchers in identifying ways to overcome them. It will also encourage others to initiate and conduct similar research in the country and the wider region, leading to the construction of appropriate databases, by highlighting areas where further studies should be done. For example, exploratory qualitative research is needed to examine Saudi women's sexual and reproductive health in depth and to explore how to implement a comprehensive SRH promotion programme.

As there is no limit to knowledge and no boundaries for information, one way to empower women is to provide them with knowledge and information, allowing them to escape the restrictions imposed on them by the more conservative elements of society, whereby older

people and traditional beliefs and practices currently limit their learning and control the knowledge available to them. This does not mean that all aspects of Saudi culture and tradition are inimical to young women's interests. Indeed, most of that culture is simply unique and special, which differentiates the Saudi community from other societies. All that is needed is an atmosphere in which the cultural context and barriers are infused with respect and which allows young women to be provided with the information they need, so that they can receive the services and programmes that they need in ways which are compatible with the culture.

It is hoped that this thesis, reporting a unique study, will be seen as essential reading for policymakers and programme directors seeking to improve the sexual and reproductive health of Saudi women. The final section of this concluding chapter presents the recommendations arising from the results of the present research, addressed to stakeholders and policymakers, listed for the purpose of this study as the Ministry of Health, the Ministry of Education, other organisations concerned with women's health and researchers.

7.5 Recommendations for stakeholders and further research

7.5.1 Recommendations for future research

- The research environment should be improved by strengthening political and local institutional support for sexual and reproductive health research and researchers. The authorities should also encourage advocacy in research so that all data already collected on SRH can be released without restriction.
- The dissemination of research results should be improved locally and by publication in international journals.

- Support and legitimacy are needed for interdisciplinary research using both quantitative and qualitative methods to fill the gap in knowledge of women's SRH, especially their knowledge, needs and behaviour and the effects of social norms, culture and religion on their health.
- Interventions are required to address the barriers that women face, including their empowerment with knowledge and awareness to help overcome the social disadvantages affecting young women in particular.

7.5.2 Recommendations for the ministries of health and education

It is recommended that the Ministry of Health and the Ministry of Education should:

- Advocate for improved sexual and reproductive health among their own staff and other people interested in this.
- Consider designing education programmes for schools and universities within the culture of Saudi Arabia and Islamic teaching.
- Assess the situation of hospitals and primary healthcare centres where SRH services are provided, to identify the kinds of services offered, those that are needed and the readiness of healthcare professionals to provide such services in a friendly and confidential environment.
- Assess the needs of single women and provide SRH services for them without judgment or stigmatization, within the framework of Saudi culture and Islamic law.
- If possible and where needed, provide training for healthcare staff and teachers to enable them to provide these services.
- Use the strong popular influence of religious leaders to advocate for the initiation and provision of SRH services to society.

- Use the media and the internet to reach out to the general population and to disseminate appropriate educational materials.

7.6 Plans are for disseminating information from the thesis

- The results of this study will be disseminated on some of local newspapers, which contain a special page devoted to medical and health news and results for new studies.
- Additional dissemination will occur through presentations at conferences, regionally and nationally,
- And through articles published in peer-reviewed journals.
- All research results/reports will be reviewed and a copy will be sent to relevant policy makers involved in the project.
- All research results/reports will be reviewed and a copy will be sent to the universities participated in the study.

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Appendices

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18th July 2012

To Whom It May Concern:

Re: QMREC2012/54 – Exploring sexual and reproductive health information seeking behaviour, level of knowledge and needs of Saudi women in Riyadh City, Saudi Arabia.

The above study was conditionally approved by The Queen Mary Research Ethics Committee on the 11th July 2012; full approval was ratified by Delegated Member's Action on the 18th July 2012.A protocol amendment (revised questionnaire) was approved by Chair's Action on the 16th April 2013.

This approval is valid for a period of two years, (if the study is not started before this date then the applicant will have to reapply to the Committee).

Yours faithfully

Ms Elizabeth Hall – QMREC Chair.

Queen Mary
University of London

Questionnaire NO

An exploratory study of sexual and reproductive health knowledge, information-seeking behaviour and attitudes among Saudi women: A questionnaire survey of university students.

Your correct answers are very important. Please answer each question carefully and honestly.

NUMBER:

TYPE OF UNIVERSITY

Private ☐ Government ☐

Year of study

Undergraduate ☐ post graduate ☐

Academic discipline

a) Medicine ☐
b) Religious studies ☐
c) Science ☐
d) Humanities ☐
e) Arts ☐
f) Other……..

SECTION 1: Personal details

1.1 How old are you in years? ☐☐

1.2 Where do you live?

- ☐ North Riyadh
- ☐ South Riyadh
- ☐ West Riyadh
- ☐ East Riyadh
- ☐ Outside Riyadh

1.3 What is your current marital status?

- ☐ Single
- ☐ Engaged
- ☐ Currently married
- ☐ Widowed
- ☐ Divorced
- ☐ Separated
- ☐ Other (please specify).....

1.4 What is your mother's level of education?

- ☐ No education
- ☐ Primary school
- ☐ Intermediate school
- ☐ High school
- ☐ University graduate

1.5 What is your father's level of education?

- ☐ No education
- ☐ Primary school
- ☐ Intermediate school
- ☐ High school
- ☐ University graduate

1.6 How religious do you consider yourself to be?

- ☐ Highly religious
- ☐ Religious
- ☐ Somewhat religious
- ☐ Not at all religious

1.7 in your views and behaviour, how traditional do you consider yourself to be?

- ☐ Highly traditional
- ☐ Traditional
- ☐ Somewhat traditional
- ☐ Not at all traditional

SECTION 2: Communication with Parents

2.1 I feel that I can discuss issues about sex with my mother or father.

☐ Strongly disagree

☐ Disagree

☐ Agree

☐ Strongly Agree

2.2 How much did you learn from your mother or father about the following issues?

2.2a the ways in which boy's and girls' bodies change during puberty?

☐ Nothing

☐ Some

☐ A lot

2.3b Menstruation

☐ Nothing

☐ Some

☐ A lot

2.4c the sexual and reproductive systems of men and women

☐ Nothing

☐ Some

☐ A lot

2.5d Contraception, the means by which one can prevent pregnancy?

☐ Nothing

☐ Some

☐ A lot

2.6f Male and female relationships the sexual relationship between man and woman

☐ Nothing

☐ Some

☐ A lot

SECTION 3: Activities and socializing

3.1 Do you watch satellite TV?

☐ Yes

☐ No

3.2 Do you smoke cigarettes?

☐ Yes

☐ No

3.3 Do you smoke a sheesha (water pipe)?

☐ Yes

☐ No

3.4 Do you drink alcohol?

☐ Yes

☐ No

3.5 Do you use illegal drugs?

☐ Yes

☐ No

3.6 How often have you had occasion to see photographs or books illustrating sexual activity?

☐ Never

☐ Once or twice

☐ 3 or 4 times

☐ 5 times or more

3.7 How often have you seen films that illustrate sexual activity?

☐ Never

☐ Once or twice

☐ 3 or 4 times

☐ 5 times or more

SECTION 4: Sexual & Reproductive Health Knowledge

Indicate whether you think the following statements are true or false, or that you don't know.

Statements	True	False	Don't know
4.1 A woman can get pregnant the very first time that she has sexual intercourse.			
4.2 Condoms are an effective method of protecting against HIV.			
4.3 Condoms are an effective method of preventing pregnancy.			
4.4 The oral pill is an effective method of preventing pregnancy.			
4.5 Women can get pregnant through kissing or touching.			
4.6 Withdrawal is an effective method of preventing pregnancy.			
4.7 Within the menstrual cycle, there is a period during there is a high possibility of pregnancy			

4.8 Have you ever attended any sexual and reproductive health courses as part of compulsory or optional programmes at university?

☐ Yes

☐ No

4.9 Before or shortly after you menstruated for the first time did you speak to anybody about menstruation?

☐ Yes ⟶ go to 4.10

☐ No ⟶ go to section 5

4.10 If yes, to whom did you speak? (Tick all that apply)

☐ Mother

☐ Father

☐ Sister

☐ Girlfriend

☐ Close female relative (e.g. aunt)

☐ Teacher

☐ Nurse / Doctor

☐ Other (please specify) ----------

SECTION 5: Personal Attitudes towards Sexuality & Gender

Sexual Norms How socially acceptable is it these days if:	**Strongly acceptable**	**acceptable**	**unacceptable**	**very acceptable**
5.1 Unmarried young people socialize with the opposite sex?				
5.2 Unmarried females have boyfriends?				
5.3 Unmarried females have physical intimacy such as touching, kissing and hugging the opposite sex?				
5.4 Unmarried females have sex?				
Personal attitudes Young people have various views about relationships. What is your personal opinion of the following statements?	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
5.5 It is acceptable for young people to socialize with the opposite sex.				
5.6 It is all right for unmarried boys to have girlfriends.				
5.7 It is all right for unmarried girls to have boyfriends.				
5.8 It is not all right for boys and girls to have physical intimacy, such as touching, kissing and hugging the opposite sex.				
5.9 It is wrong for unmarried boys and girls to have sexual intercourse, even if they love each other.				
5.10 Girls should remain virgins until they marry.				
5.11 It is all right for boys and girls to have sex before marriage if they use methods to prevent pregnancy.				
5.12 Virginity is a girl's most valuable possession.				
5.13 My religious and beliefs are against premarital sex.				
5.14 It is okay for boys to have sex before marriage but not so for girls.				

SECTION 6: Contraception knowledge and usage

6.1 Which methods of contraception have you heard of or know?

Methods	Yes	No
Female sterilization		
Pill		
Intrauterine device (IUD)		
Implant		
Lactation amenorrhea method		
Injection		
Condom		
Male sterilization (Vasectomy)		
Diaphragm, Foam, Jelly, Suppository		
Rhythm or Calendar Method		
Withdrawal		

6.2 If applicable, do you use any contraceptive methods now?

☐ Yes ⟶ Go to question 6.4

☐ No ⟶ go to the next question

6.3 If No, why you are not using any method of contraception? (Tick all that apply)

☐ Not married

☐ Fertility related reason

☐ Opposition to use

☐ Lack of knowledge, knows no method

☐ Religious reasons

☐ Fear of side effects

☐ Husband refuses

☐ Money problems

☐ Lack of access

☐ Other reasons (please specify)..... ⟶ Go to section 7

6.4 What method of contraception are you using? (Tick all that apply)

☐ Female sterilization (Tubal ligation)

☐ Male sterilization (Vasectomy)

☐ Pill

☐ Intrauterine device

☐ Injection

☐ Implants

☐ Condom

☐ Diaphragm, Foam, Jelly, Suppository

☐ Lactation amenorrhea method

☐ Rhythm or calendar method

☐ Withdrawal

☐ Other (please specify).....

6.5 If applicable, from where did you obtain supplies of the contraception you selected in question 6.4? (Tick all that apply)

☐ Governmental Hospital

☐ Primary health care centre

☐ Private hospital/ clinic

☐ Pharmacy

☐ Other (please specify).....

6.6 Where did you obtain information on the contraceptive method you are using? (Tick all that apply)

☐ Doctor

☐ Friends

☐ Family members

☐ My mother

☐ Internet

☐ Husband

☐ Other (please specify).....

Section 7: Sexually transmitted diseases and HIV knowledge

7.1 Which sexually transmitted diseases (STD) have you heard of or know?

STD	YES	NO
Gonorrhoea		
Syphilis		
Chlamydia		
HIV/AIDS		
Genital herpes / sore		
Don't know any		

7.2 Where did you hear about any of these sexually transmitted diseases and HIV? (Tick all that apply)

☐ Radio

☐ TV

☐ Newspapers

☐ Poster

☐ Health Professional

☐ Mosque

☐ School

☐ Friends

☐ Clinic

☐ Other (please specify).....

7.3 Which symptoms do you think someone with a sexually transmitted disease may have? (Tick all that apply)

☐ No symptoms

☐ Abdominal pain

☐ Genital itching

☐ Redness in the genitals

☐ Genital lesions/sores

☐ Pain

☐ Burning sensation during urination

☐ Discharge from penis

☐ Vaginal discharge

☐ Weight loss

☐ Infertility

☐ Don't know

☐Other (please specify).....

7.4 How do you think one can be infected with a sexually transmitted disease and HIV? (Tick all that apply)

☐ Sexual intercourse with sex worker

☐ Sexual intercourse with many partners

☐ Not using condom during intercourse

☐ Blood transfusion

☐ Sharing needles

☐ Kissing

☐ Using public toilet

☐ Other (please specify).....

7.5 Is there anything that a person can do in order to avoid sexually transmitted diseases and HIV?

☐ Yes

☐ No

☐ Don't know

7.6 Can a person get the HIV virus from mosquito bites?

☐ Yes

☐ No

☐ Don’t know

7.7 Could shaking hands or hugging transmit HIV?

☐ Yes

☐ No

☐ Don’t know

7.8 Can people get the HIV virus by sharing food with a person who has HIV?

☐ Yes

☐ No

☐ Don’t know

7.9 Do you think HIV is curable?

☐ Yes

☐ No

☐ Don’t know

SECTION 8: Information-seeking behaviour and needs

8.1 Have you ever talked with anybody about sexual and reproductive health matters?

☐ Yes

☐ No

8.2 Who are the people you most often talk with about sexual and reproductive health matters? (Tick all that apply)

☐ Mother

☐ Father

☐ Sister/brother

☐ Spouse

☐ Teacher

☐ Religious teacher

☐ Friends

☐ Other relatives

☐ Physician

☐ Pharmacist

☐ Nurse

☐ Other (please specify) …….....

8.3 Do you think it is easy to obtain information on sexual and reproductive health?

☐ Yes ⟶ Go to question 8.5

☐ No ⟶ Go to the next question

8.4 If No, why is it not easy?

☐ Don't know where to obtain information

☐ Parents disapprove

☐ No services available

☐ Services providers disapprove

☐ I feel shy

☐ Other (please specify)..... ⟶ Go to next question

8.5 If you had a problem or questions about sexual and reproductive health, where would you go for help? (Tick all that apply)

☐ Clinic/hospital

☐ Qualified doctor

☐ Spouse

☐ Parents

☐ Traditional healer

☐ Friends

☐ Teachers

☐ Other (please specify).....

8.6 Would you like to attend any courses on sexual and reproductive health?

☐ Yes

☐ No

8.7 Do you think sexual and reproductive health education would increase the incidence of sex practices?

☐ Yes

☐ No

8.8 in your opinion, which of the reproductive and sexual health services listed below should be provided to women?

Service	**Yes**	**No**
Information or classes on reproductive and sexual health matters.		
Clinics for sexual and reproductive health problems.		
Contraceptives and instruction for use.		
Treatment and information on sexually transmitted diseases.		
Ante-natal and post -natal classes.		
Classes on sexual relationships and premarital preparation		

8.9 Is there anything that you want to add?

.....
.....
.....

8.10 Do you use the internet?

☐ Yes

☐ No

8.11 What kind of information on the internet would you want to know regarding your sexual and reproductive health? (Tick all that apply)

☐ Sexual intercourse

☐ Genital hygiene

☐ Contraception

☐ Pregnancy and delivery

☐ Sexual problems

☐ Sexually transmitted diseases

☐ Virginity

☐ Other**, please write what you information you want to know.....**

8.12 Do you consider the information on the internet to be reliable?

☐ Reliable

☐ Unreliable

☐ Uncertain

SECTION 9: (If you are married, please complete this section. If not, go to section 10)

9.1 How old were you when you got married?

Age in years ☐☐

9.2Have you had any experience of an unwanted pregnancy?

☐ Yes

☐ No

9.3 If applicable, how old were you when you get pregnant for the first time?

Age in years ☐☐

9.4 Have you ever experienced any sexual or reproductive health problems /disease?

☐ Yes ⟶ go to the next question

☐ No ⟶ go to question 9.6

9.5 If yes, Can you tell me what kinds of problems you have had?

☐ Sexually transmitted disease/ infection

☐ Urinary tract infection

☐ Premenstrual tension

☐ Vaginal itching and burning

☐ Problem with menstruation

☐ Excessive vaginal discharges

☐ Pain during intercourse

☐ Low sexual desire

☐Fertility problems

☐ Other (please please write any problems you had).....

9.6 Have you ever needed to seek medical care or advice for these concerns or needed any help or advice regards sexual and reproductive health matters?

☐ Yes ⟶ Go to next question

☐ No ⟶ Go to page 18

9.7 If yes, was it helpful?

☐ Yes

☐ No

9.8 Where did you go?

☐ Governmental hospital

☐ Private clinic /hospital

☐ Friends

☐ Other (please specify).....

SECTION 10: If you are NOT married, please complete this section

10.1 Have you ever had any sexual or reproductive health problems or concerns?

☐ Yes ⟶ Go to the next question

☐ No ⟶ Go to question 10.3

10.2 If yes, what kind of problems or concerns did you have?

☐ How my genitalia look

☐ Urinary tract infection

☐ Premenstrual tension (PMS)

☐ Hygiene

☐ Excessive Vaginal discharges

☐ What is the hymen?

☐ Will I lose my virginity if I play a sport or ride a horse?

☐ Other (please write any problems you had)..... ⟶ Go to question 10.3

10.3 Have you EVER needed to seek medical care or advice for these concerns or needed any help or advice regard sexual and reproductive health matters?

☐ Yes ⟶ Go to the next question

☐ No

10.4 If yes, was it helpful?

☐ Yes

☐ No

10.5 Where did you go?

☐ Governmental hospital

☐ Private clinic /hospital

☐ Friends

☐ Other (please specify).....

Dear students

Please place the questioner in the envelope provided then seal it after that return the sealed envelope to the researcher.

THANK YOU VERY MUCH FOR COMPLETING THE QUESTIONNAIRE. YOUR HELP IS VERY MUCH APPRECIATED.

If you have any suggestions or other concerns in this regard please feel free to state them here

……
……
……
……
……

Queen Mary
University of London

Questionnaire NO

قياس مستوى الوعي الصحي الجنسي والإنجابي لدى طالبات الجامعات ومصادر المعلومات

إجابتك الصحيحة في غاية الاهمية. يرجى الإجابة على كل سؤال بعناية وبأمانة تامة

نوع الجامعة ؟

خاصة □ حكومية □

نوع الدراسة ؟

بكالوريوس□دراسات عليا □

المدارس الأكاديمية ، ماهو التخصص ؟

أ. الطب □
ب. الدراسات الدينية □
ج. العلوم□
د. العلوم الإنسانية□
ه. الآداب□
و. أخرى الرجاء التحديد.....

القسم الأول – البيانات الشخصية

١.١ كم عمرك بالسنوات؟□□

١.٢ أين تعيشين؟

□ شمال الرياض

□ جنوب الرياض

□ غرب الرياض

□ شرق الرياض

□ خارج الرياض

١.٣ ما هي حالتك الاجتماعية الحالية؟

□ آنسة

□ مخطوبة

□ متزوجة حالياً

□ أرملة

□ مطلقة

□ اخرى تذكر.....

١.٤ ما هو تعليم والدتك؟

□ بدون تعليم

□ المرحلةالا بتدائية

□ المرحلةالمتوسطة

□ المرحلةالثانوية

□ جامعية

١.٥ما هو تعليم والدك؟

□ بدون تعليم

□ المرحلة الابتدائية

□ المرحلةالمتوسطة

□ المرحلةالثانوية

□ جامعي

1.6 كيف تقيمين نفسك من ناحية التدين؟

□ متدينة للغاية

□ متدينة

□ متدينة إلى حد ما

□ لست متدينة على الإطلاق

١.٧ في رأيك وسلوكياتك ما مدى تقليديتك (تمسكك واتباعك للعادات والتقاليد) ؟

□ تقليدية للغاية

□ تقليدية

□ تقليدية نوعا ما

□ لست تقليدية على الإطلاق

القسم الثاني – التواصل مع الوالدين

٢.١ أشعر أنني يمكنني مناقشة المواضيع المتعلقه با الجنس مع والدتي أو والدي

□ أرفض بشدة

□ أرفض

□ أوافق

□ أوافق بشدة

٢.٢ كم تعلمتي من والدتك أو والدك حول المسائل التالية؟

٢.٢ أالطريقة التي يتغير بها جسم الولد والبنت أثناء سن البلوغ؟

□ لا شيء

□ بعض الشيء

□ الكثير

٢.٣ب الحيض؟

□ لا شيء

□ بعض الشيء

□ الكثير

٢.٤ ج الجهاز الجنسي والتناسلي للرجل والمرأة ؟

□ لا شيء

□ بعض الشيء

□ الكثير

٢.٥ د منع الحمل، الوسائل التي من خلالها نستطيع منع الحمل؟

□ لا شيء

□ بعض الشيء

□الكثير

٢.٦ه حول علاقة الرجل بالمرأة والعلاقة الجنسية بين الرجل والمرأة؟

□لا شيء

□ بعض الشيء

□ الكثير

<u>القسم الثالث: الأنشطة الاجتماعية ووسائل الترفيه</u>

٣.١ هل تشاهدين القنوات الفضائية؟

□ نعم

□ لا

٣.٢ هل تدخنين السجائر؟

□ نعم

□ لا

٣.٣ هل تدخنين الشيشة (النارجيلة)؟

□ نعم

□ لا

٣.٤ هل تشربين الكحوليات؟

□ نعم

□ لا

٣.٥ هل تستخدمين العقاقير غير القانونية (المخدرات)؟

□ نعم

□ لا

٣.٦ كم مرة كانت لديك مناسبة لمشاهدة صور أو كتب تشرح النشاط الجنسي؟

□ أبداً

□ ١-٢ مرة

□ ٣-٤ مرات

□ ٥مرات وأكثر

٣.٧ كم مرة شاهدت أفلام توضح النشاط الجنسي؟

□ أبداً

□ ١-٢ مرة

□ ٣-٤ مرات

□ ٥مرات وأكثر

القسم الرابع: الوعي والمعرفه بالصحه الجنسية والانجابية

وضحي إذا كانت الجمل التالية صحيحة أو خاطئة أو إذا كنتي لا تعرفين شيئا عنها:

الجملة	صحيح	خطأ	لا أعرف
٤.١ يمكن للمرأة أن تحمل في أول مرة يحدث اتصال جنسي؟			
٤.٢ الواقي الذكري طريقة فعالة للحماية من مرض الايدز؟			
٤.٣ الواقي الذكري طريقة فعالة لمنع الحمل؟			
٤.٤ خلال الدورة الشهريه هناك فتره بحيث احتمالية الحمل تزيد			
٤.٥ حبوب منع الحمل هي طريقة فعالة لمنع الحمل؟			
٤.٦ القذف الخارجي هي طريقة فعالة لمنع الحمل؟			
٤.٧ يمكن للمرأه ان تحملبالقبلات وملامسة الأيدي؟			

٤.٨ هل حضرتي أي برنامج او مقرر عن الصحة الجنسية أو التناسلية كجزء من برنامج إلزامي أو اختياري في الجامعة؟

□ نعم

□ لا

٤.٩ قبل أن تحيضي أو بعد حدوث الحيض لأول مرة هل تحدثت مع أي أحد حول الحيض؟

□ نعم

□ لا

٤.١٠ إذا كانت الإجابة بنعم، مع من تحدثتي؟ (الرجاء اختيار كل ماينطبق)

□ الأم

□ الأب

□ الأخت

□ صديقتي

□قريبة للعائلة (عمتي...غيرها)

□ معلمتي

□ الممرضة/الدكتورة

□ أخرى (يرجى تحديدها).....

القسم الخامس: التوجهات الشخصية تجاه الجنس والنوع

المعيار الجنسي: **ما مدى تقبله اجتماعيا هذه الأيام في حالة**	**مقبول جدا**	**مقبول**	**غير مقبول**	**غير مقبول جدا**
٥.١ شباب وشابات غير متزوجات تربطهم علاقات وصداقات				
٥.٢ شابة غير متزوجة لديها صديق				
٥.٣ فتيات غير متزوجات لديهم اتصال جسدي كالملامسة والقبلات والأحضان مع الجنس الآخر				
٥.٤ فتيات غير متزوجات يمارسن الجنس				
التوجه الشخصي: **الشباب لديهم آراء متنوعة حول العلاقات ما هو رأيك الشخصي تجاه الجمل التالية**	**أوافق بشدة**	**أوافق**	**لا أوافق**	**لا أوافق بشدة**
٥.٥ هل مقبول أن يقوم الشباب بالتعارف على الجنس الآخر				
٥.٦ هل الأمر على ما يرام أن يكون للفتى غير المتزوج صديقة				
٥.٧ هل الأمر على ما يرام أن يكون للفتاة غير المتزوجة صديق				
٥.٨ ليس الأمر على ما يرام أن يقوم الفتيان والفتيات بعمل اتصال جسدي مثل الملامسة والقبلات والأحضان مع الجنس الآخر				
٥.٩ من الخطأ على الشباب والشابات عمل اتصال جنسي حتى إذا كانا يحبان بعضهما البعض				
٥.١٠ على الفتيات أن يبقين عذارى حتى يتزوجن				
٥.١١ الأمر على ما يرام بالنسبة للفتيان والفتيات أن يقوموا بعلاقات جنسية قبل الزواج إذا استخدموا وسائل منع الحمل.				
٥.١٢ العذرية هي أغلى ممتلكات الفتاة				
٥.١٣ معتقداتي الدينية ضد الجنس قبل الزواج				
٥.١٤ من المعقول بالنسبة للفتيان أن يقوم بعمل اتصال جنسي قبل الزواج لكن لا يمكن للفتيات.				

القسم السادس المعرفة بوسائل منع الحمل واستخدامها

٦.١ أي من وسائل منع الحمل التالية سمعت عنها؟

الوسيلة	نعم	لا
تعقيم الأنثى		
الحبوب		
اللولب		
الحقن		
تعقيم الرجل		
الواقي الذكري		
الرضاعه الطبيعيه		
الغشاء والرغوة والجيلي		
طريقه العد		
الانسحاب او القذف الخارجي		

٦.٢ هل تستخدمين أي طريقة الآن؟

□ نعم ←——— **يرجى الانتقال للسؤال.٤ ٦**

□ لا ←——— **يرجى الانتقال للسؤال التالي**

٦.٣ في حالة الإجابة بلا، ما هو سبب عدم استخدام أي وسيلة؟ (الرجاء اختيار كل ماينطبق)

□ سبب خاص بالخصوبة

□ معارضة للاستخدام

□ قلة المعرفة ولا أعرف أي طريقة

□ أسباب دينية

□ خوف من الأعراض الجانبية

□ رفض الزوج

□ مشاكل مالية

□ قلة الحصول عليه

□ أسباب أخرى يرجى تحديدها..... **الرجاء الانتقال الى القسم السابع**

٦.٤اذا كنتي تستخدمي اي وسيله ،أي طريقة تستخدمينها الان؟ (الرجاء اختيا كل ماينطبق)

- □ التعقيم الأنثوي
- □ التعقيم الذكوري
- □ الحبوب
- □ اللولب
- □ الحقن
- □ الواقي الذكري
- □ الغشاء والرغوة والجيلي والمواد المضافة
- □ الرضاغه الطبيعيه
- □ طريقه العد او الفتره الامنه
- □ القذف الخارجي
- □ أخرى (يرجى تحديدها).....

٦.٥ اذا كنتي تستخدمي اي طريقة ، من أين حصلتي على هذه الوسيلة؟

- □ المستشفى حكومي
- □ مركز الرعاية الصحية الأولية
- □ مستشفيات أوعيادات خاصة
- □ صيدلية
- □ أخرى (يرجى تحديدها).....

٦.٦ اذا كنتي تستخدمي اي طريقة، من أين حصلتي على المعلومات الخاصة بالوسيلة التي تستخدمينها؟ (الرجاء اختيار كل ماينطبق)

- □ الطبيب
- □ الأصدقاء
- □ أفراد الأسرة أوالأقارب
- □ أمي
- □ الانترنت
- □ زوجي
- □ أخرى (يرجى تحديدها).....

القسم السابع: الأمراض المنقولة جنسيا

٧.١ أي الأمراض المنقولة عبر الاتصال الجنسي سمعتي عنها اوتعرفينها؟

المرض	نعم	لا
السيلان		
الزهري		
الكلاميديا		
HIV/AIDS الايدز		
تقرح الأعضاء التناسلية		
لا أعرف أي منهم		

٧.٢ أين سمعتي عن الأمراض المنقولة عبر الاتصال الجنسيأو مرض الايدز ؟ (الرجاء اختيار كل ماينطبق)

□ الراديو

□ التلفزيون

□ الصحف او الجرائد

□ الملصقات

□ اخصائي صحي

□المسجد

□المدرسة

□ الأصدقاء

□ العيادات

□ أخرى.....

٧.٣ ماهيه الأعراض التي تعتقدي أن تظهر علىالشخص المصاب بأحد الامراض الجنسية ؟(الرجاء اختيار كل ماينطبق)

□ ليس لديه أي أعراض

□ ألم في البطن

□ حكة في الأعضاء التناسلية

□ آفات أو احتقان في الأعضاء التناسلية

□ ألم

□ تهيج الإحساس أثناء التبول

□ إفرازات من العضو الذكري

□ إفرازات مهبلية

□ فقدان الوزن

□ عقم

□ لا أعرف

□ أخرى (يرجى تحديدها).....

٧.٤ كيف تعتقدين أن شخصا يمكن أن يصاب بالأمراض المنتقلة عبرالاتصال الجنسي أو الايدز؟(الرجاء اختيار كل ماينطبق)

□ الاتصال الجنسي الغير شرعي

□ الاتصال الجنسي مع العديد من الاشخاص

□ عدم استخدام الواقي الذكري أثناء الاتصال الجنسي

□ نقل الدم

□ مشاركة الإبر

□ القبلات

□ استخدام دورات المياه العامة

□ أخرى.....

٧.٥ هل هناك شيء يمكن الفرد القيام به لتجنب الأمراض المنتقلة عبر الاتصال الجنسي؟

□ نعم

□ لا

□ لا أعرف

٧.٦ هل يمكن للفرد الإصابة بفيروس الإيدز من عضات البعوض؟

□ نعم

□ لا

□ لا أعرف

٧.٧ هل يمكن للسلام بالأيدي أو العناق أن ينقلا الإيدز؟

□ نعم

□ لا

□ لا أعرف

٧.٨ هل يمكن أن يصاب الناس بالإيدز عن طريقة مشاركة الأطعمة مع شخص مصاب بالإيدز؟

□ نعم

□ لا

□ لا أعرف

٧.٩ هل تعتقد أن مرض الإيدز يمكن علاجه؟

□ نعم

□ لا

□ لا أعرف

القسم الثامن: وسائل البحث عن المعلومات

٨.١ هل سبق ان تحدثتي مع أي شخص حول الأمور المتعلقه بالصحة الجنسية و الإنجابية؟

□ نعم ←——— **يرجى الانتقال للسؤال التالي**

□ لا ←——— **يرجى الانتقال للسؤال8.3**

٨.٢ من هم الاشخاص الذين غالباً تتحدثين معهم حول الأمور الجنسية وأمور الصحة الإنجابية؟(الرجاء اختيار كل ماينطبق)

□ الأم

□ الأب

□ الأخت أوالأخ

□ الزوج أوالزوجة

□ المعلم

□ الشيخ

□ الأصدقاء

□ أقارب آخرين

□ الطبيب

□ الصيدلي

□ الممرضة

□ أخرى.....

٨.٣ هل تعتقدين أنه من السهل الحصول على معلومات متعلقه با الصحه الجنسية و الإنجابية؟

□نعم ←——— الرجاء الانتقال الى السؤال ٨.٥

□لا ←——— الرجاء الانتقال الى السؤال التالي

٨.٤ في حالة كونها صعبة، لماذا هي صعبة؟

□ لا أعرف من أين أحصل على المعلومات

□ عدم موافقة الوالدين

□ عدم موافقة مقدمي الخدمات

□ الشعور بالخجل

□ أخرى.....

٨.٥ إذا كانت لديك مشكلة أو أسئلة حول الصحة الجنسية أو الصحة الإنجابية أين تذهبين للحصول على المساعدة؟
(الرجاء اختيار كل ماينطبق)

□ العيادة/المستشفى

□ طبيب مؤهل

□ الزوج(ة)

□ الوالدين

□ المعالج التقليدي الشعبي

□ الأصدقاء

□ المعلمين

□ أخرى

٨.٦ هل تريدين حضور دورات خاصة حول الصحة الجنسية و الإنجابية؟

□ نعم

□ لا

٨.٧ هل تعتقدين أن الثقافه الجنسية و الصحة الإنجابية ستزيد من حدوث الممارسات الجنسية؟

□ نعم

□ لا

٨.٨ في رأيك أي من خدمات الصحة الجنسية والانجابية المدرجة أدناه ينبغي أن تقدم للمرأة؟

الخدمة	نعم	لا
المعلومات/الدورات حول الصحة الإنجابية والصحة الجنسية		
عيادات متخصصه في المشاكل الإنجابية ومشاكل الصحة الجنسية		
وسائل منع الحمل وتعليمات حول الاستخدام		
معلومات حول الأمراض المنتقلة عبرلاتصال الجنسي وعلاجها		
فصول تعليمية خاصة عن الحمل والولادة		
دورات خاصة عن العلاقه الجنسية و دورات خاصة لما قبل الزواج		

٨.٩ هل هناك شيء آخر او خدمات ترغبين في إضافتها ؟

.....
.....
.....

٨.١٠ هل تستخدمين الإنترنت؟

□ نعم

□ لا

٨.١١ ما نوع المعلومات التي ترغبين فيمعرفتها بخصوص صحتك الجنسية و الإنجابية ؟ (الرجاء اختيار كل ماينطبق)

□ الاتصال الجنسي

□ الصحة التناسلية

□ وسائل منع الحمل

□ الحمل والولادة

□ المشاكل الجنسية

□ الامراض المنتقله جنسيا

□ كيفيه تنظيف الاعضاء التناسليه

□ العذرية

□**أخرى يرجى كتابة كل ما تريدن معرفته لتعم الفائده**

.....
.....
.....

٨.١٢ هل تعتقدين أن المعلومات المتوفره با الانترنت موثوق بها؟

□ موثوق بها

□ غير موثوق بها

□ غير أكيدة

القسم التاسع: (إذا كنتيمتزوجة يرجى إكمال هذا القسم ، إذا لم تكوني كذلك الرجاء الانتقال إلى القسم العاشر)

٩.١ كم كان عمرك عندما تزوجتي؟

العمر بالسنين □□

٩.٢ هل لديك أية خبرات ؟ تجارب بحمل غير مرغوب فيه او غير مخطط له؟

□ نعم

□ لا

٩.٣ اذا سبق لكي الحمل كم كان عمرك عندها؟

العمر بالسنين □□

٩.٤ هل سبق ان تعرضتي او اصبتي با أي مشاكل أو أمراض جنسية او انجابية ؟

□ نعم ←——— الرجاء الانتقال للسؤال التالي

□ لا ←——— الرجاء الانتقال الي سؤال ٩.٦

٩.٥ اذا كانت الاجابه نعم ، هل يمكنك إخبارنا بنوعية المشاكل التي تعرضتي لها؟ (الرجاء اختيار كل ماينطبق)

□ أمراض/عدوى منقولة جنسياً

□ التهاب في الجهاز البولي

□ مشاكل في الحيض

□ حكه وحرقان في الاعضاء التناسليه

□ إفرازات مهبلية زائدة

□ ألم أثناء الاتصال الجنسي

□ رغبة جنسية منخفضة

□ مشاكل متعلقه بالاخصاب

□ أخرى (يرجى تحديدها

.....

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٩.٦ هل سبق ان احتجت من قبل أن تبحثي عن رعاية طبية أو مساعدة لهذه المشاكل ؟

□ نعم ←——— الرجاء الانتقال للسؤال التالي

□ لا

٩.٧ إذا كانت الإجابة بنعم هل كانت هذه المساعده مفيده ؟

□ نعم

□ لا

١٠.٥ أين ذهبتي للحصول على المساعدة أو الرعاية الطبية؟(الرجاء اختيار واحد فقط)

□ مستشفى حكومي

□ عيادة او مستشفى خاصة

□ الأصدقاء

□أخرى.....

القسم العاشر: إذا كنتى غير متزوجةيرجى إكمال هذا القسم

١٠.١ هل سبق و ان تعرضتي لاي مشكله أو تساؤلات متعلقه بالصحةالجنسية أو الانجابية؟

□ نعم

□ لا

١٠.٢ اذا كانت الاجابه نعم ، ما هيه نوعيه المشاكل أو التساؤلات التي كانت لديك؟ (الرجاء اختيار كل ماينطبق)

□ كيف تبدوا أعضائي التناسلية

□ نظافه الاعضاء التناسليه

□ التهابات الجهاز البولي

□ توتر فترة الحيض

□ الإفرازات المهبلية

□ ما هو غشاء البكارة

□ هل أفقد عذريتي إذا مارست اي رياضة أو ركبت الخيل؟

□**أخرى (يرجى كتابة أي تساؤلات ا و مشاكل كانت لديك لتعم الفائدة)**

.....
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.....

١٠.٣ هل سبق وان احنجتي الى مساعدة او رعاية طبية لهذه المشاكل ؟

□ نعم ←——الرجاء الانتقال للسؤال التالي

□ لا

١٠.٤ إذا كانت الإجابة بنعم هل كانت هذه المساعدة أو الخدمات مفيده؟

□ نعم

□ لا

١٠.٥ أين ذهبتي للحصول على المساعدة او الرعاية الطبية؟ (الرجاء اختيار واحد فقط)

□ مستشفى حكومي

□ عيادة او مستشفى خاصة

□ الأصدقاء

□ أخرى.....

أخواتي الطالبات

الرجاء وضع الاستبانه المعبأه في الظرف واغلاق الظرف ثم اعادته الى الباحثه

مع خالص الشكر والتقدير أقدر مساعدتكم كثيرا

إذا كانت لديكم أية اقتراحات أو اهتمامات أخرى في هذا المجالالرجاء ذكرها لتعم الفائده

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Queen Mary
University of London

Information sheet for the participants

Research title: **An exploratory study of sexual and reproductive health knowledge, information-seeking behaviour and attitudes among Saudi women: A questionnaire survey of university students**

What is the aim of this research?

The research aims to explore Saudi women's knowledge, attitudes, behaviour and the characteristics of sexual and reproductive health needs in Riyadh city, the capital of Saudi Arabia.

What are the objectives of the research?

1. To explore the level of sexual and reproductive health knowledge and awareness among Saudi female university students.
2. To explore the sexual and reproductive health attitudes and awareness among Saudi female university students
3. To explore sexual and reproductive health information-seeking behaviour among Saudi female university students.
4. To compare, through data analysis, single and married women in terms of their needs and the level of knowledge they have.

Who can participate in the research?

All registered Saudi female students in Riyadh city are the target population for the study.

Do I have to take part in the research?

This survey is completely anonymous, and all of your answer will be strictly confidential. You are under no obligation to take part in this survey as participation is completely voluntary. If you decide to participate in the research you will get this information sheet to keep. It is important to be aware that even though you agree to participate and you give consent, you still have the complete right to withdraw at any time and without giving any reasons.

What I need to do?

Please complete the questionnaire to the best of your ability. This will take around 20-30 minutes please answer all questions as honestly, truly and accurately as possible. When you have completed the questionnaire place it in the envelope provided and seal the envelope. Please return the sealed envelope to the researcher, who will be available in the area if you needed any help or want to ask questions.

Will my participation in this research will be confidential?

Yes. All information obtained will be considered confidential and not disclosed to anyone. It will be kept in a secure area where only the researcher can have access to. Also the questionnaire does not require any personal information, names or university ID. Therefore, you cannot be linked to your answers.

What will happen to the research results?

It is planned that the research findings will be presented in a PhD thesis, at academic conferences and to professionals who plan or deliver sexual and reproductive health services in Saudi Arabia. As well as, to be published as academic papers or short research reports In Saudi Arabia and the UK. The thesis arising from this research will be available via the British Library and the Queen Mary, university of London library.

Who is funding this research?

The researcher has been awarded a scholarship by the Saudi Arabian Ministry of Higher Education as part of king Abdullah scholarships program.

Are there any disadvantages by taking part in the research?

I do not expect any particular disadvantages from participation in this study. However many of the questions touch on sensitive topics, so you might feel discomfort while you answer them. But please remember that all your answers will be highly confidential.

What are the benefits of taking part?

By taking part in this research you will help us to understand and explore Saudi women's sexual and reproductive health knowledge, needs and problems. This will contribute to improving and developing comprehensive sexual and reproductive health programmes in Saudi Arabia.

Thank you for reading this information sheet if there is anything that you would like to know or if you need more information you can contact me directly.

Please keep these information sheets with you, don't return them with the completed questionnaire.

Researcher

Manal AL-Farih

Email: m.farih@qmul.ac.uk

Telephone contact

UK: 00447853614109

Queen Mary, University of London

Women's Health Research Unit

Centre for Primary Care and Public Health

Blizard Institute

Barts and London school of Medicine and Dentistry

Yvonne carter building, 58 Turner Street

London E1 2AB

Researcher supervisors

1. Professor Khalid Khan
   Professor of Women's Health and Clinical Epidemiology

   Email: k.s.khan@qmul.ac.uk

2. Professor Della Freeth
   Professor of Professional Education

   Email: d.freeth@qmul.ac.uk

3. Dr Catherine Meads
   Reader in Health Technology Assessment
   Health Economics Research Group
   Brunel University

   Email: catherine.meads@brunel.ac.uk

معلومات عن البحث

عنوان البحث : قياس مستوى الوعي الصحي الجنسي والإنجابي. لدى المرأة السعوديه ومصادر المعلومات

الغرض من الدراسه ؟

تهدف هذه الدراسه إلى قياس مستوى الوعي الصحي للمرأة السعودية في الجوانب المتعلقه بالصحه الجنسية والانجابية، إلى جانب معرفه نوعية المشاكل الجنسية والانجابية التى تتعرض لها.

اهداف الدراسه:

١. قياس مستوى الوعى الصحي للمرأة السعودية في الجوانب المتعلقه بالصحة الجنسية والإنجابية.
٢. التعرف على المصادر التى تستقي منها المرأة السعوديه معلوماتها الصحيه الجنسية والإنجابية وكيف تقوم بالبحث عن المعلومات.
٣. التعرف على مدى توفر مراكز تقدم خدمات متعلقه بالصحه الجنسيه والانجابيه الى جانب مدى استخدام واستفادة المرأة من تلك المراكز الصحية.
٤. المقارنه بين المراه المتزوجه والغير متزوجه من خلال نوعيه المشاكل الجنسيه والانجابيه التى يتعرضن لها وتساؤلاتهم حول الصحة الجنسية والانجابية.

من يشارك بالدراسة ؟

الطالبات السعوديات بالجامعات والكليات الحكوميه والاهلية في مدينة الرياض.

هل اشارك بالدراسه ؟

مشاركتك في الدراسه اختيارية، وإذا أردتي طرح أي استفسار الرجاء سؤال الباحثه مباشرة حيث ستكون متواجده لهذا الغرض. و كوني على علم بأن مشاركتك **مهمة جدا** وجميع المعلومات ستكون خاصة وسرية للغاية ولن تحتاجي الى تزويدنا بأي معلومات شخصية عنك.

ماذا علي فعله للاشتراك بالدراسة ؟

الرجاء منك قراة الاستبانة والاجابة على جميع الأسئلة بصدق وشفافية. وعند الانتهاء من ملء الاستبانة وضعها بالظرف الخاص واقفال الظرف وهذا للحفاظ على السريه الكاملة ثم تسليمه للباحثة.

هل ستكون مشاركتي في الدراسه سرية ؟

نعم ، جميع المعلومات التى سيتم الحصول عليها ستكون سرية وخاصة ولن يتم الكشف عنها لأي شخص الى جانب أن الاستبانة التى ستقومين بتعبئتها لن تكتبي فيها اسمك او اي معلومات خاصة بكي اطلاقا.

ماذا سيحدث لنتائج البحث ؟

من المتوقع أن يتم نشر النتائج في كل من المملكة العربية السعودية وبريطانيا. وستكون رسالة الدكتوراة الخاصه بهذا البحث متوفرة في المملكة وفي جامعة "الملكة ماري جامعه لندن".

من الذى يمول هذا البحث ؟

يمول البحث وزاره التعليم العالي في المملكة العربية السعوديةحيث حصلت الباحثةعلى منحة دراسيه الى بريطانيا من الوزاره وذلك ضمن برنامج الملك عبدالله بن عبدالعزيز للابتعاث الخارجي.

هل سيترتب على اي مضار من المشاركه بالبحث ؟

لا توجد أية مضار من المشاركه بالبحث نهائيا ولكن من المهم التذكير بأنه من الممكن أن تكون بعض الاسئلة محرجة وحساسة لأ نها تدور حول الصحة الجنسية والإنجابية.ولكن تذكري أيضا بأن جميع الاجوبة ستكون في غاية السرية.

هل هنالك أي منفعه من المشاركه بالبحث ؟

نتائج الدراسه ستكون ذات قيمه كبيرة حيث ستساعدنا في التعرف على مستوى وعي المرأة با لامور المتعلقه بالصحة الجنسية والانجابية وذلك سيساعد بإذن الله في انشاء مرافق وخدمات صحيه لهذا الغرض و الى رفع مستوى الوعي الصحي عند المراة في المملكه العربيه السعوديه وخاصه فيما يتعلق بهذا الموضوع.

شكرا لكي عزيزتي الطالبه على قراءه ورقه معلومات المشاركه في البحث وامل ان تشاركي في البحث واذا كان هناك شيئا غير واضح او مبهم وتريدين معلومات اضافيه فلا تترددي في سؤال الباحثة او الاتصال عليها او ارسال رساله الى البريد الالكتروني، وتذكري دائما ان جميع المعلومات ستكون سريه وخاصه جدا. الرجاء الاحتفاظ بورقه المعلومات هذه.

الباحثه

منال ابراهيم الفارح

البريد الالكتروني :

m.farih@qmul.ac.uk

الهاتف في بريطانيا :

٠٠٤٤٢٠٧٨٨٢٢٥٢٥

جامعه الملكه ماري ، جامعه لندن

قسم ابحاث صحة المرأة

مشرفين البحث

١. **البرفسور خالد خان**
٢. **البرفسور ديلا فريث**
٣. **الدكتوره كاثرين ميد**

Letter from supervisor

Women's Health Research Unit
Centre for Primary Care and Public Health
Blizard Institute
Barts and The London School of Medicine and Dentistry
Yvonne Carter Building58 Turner Street
London E1 2AB

Tel: +44 (0)20 7882 2621
Fax: +44 (0)20 7882 2552
Email: k.s.khan@qmul.ac.uk

To whom it might concern

2nd April 2012

Dear Sir/Madam

I am writing to you to inform you that Ms Manal Farih is currently enrolled as a full-time postgraduate student at the School of Medicine and Dentistry, Queen Mary, University of London.

She will be undertaking a research study, will need to collect appropriate data in Saudi Arabia, and is keen to include your organization. I will be her supervisor for this study.

I hope you will be able to assist her in this matter.

If I can provide any further assistance or clarification, do not hesitate to contact me.

Yours faithfully

Professor Khalid Khan
Women's Health and Clinical Epidemiology

Email: k.s.khan@qmul.ac.uk
Tel: +44 20 7882 2621
Fax: +44 20 7882 2552

Letter from the embassy

ROYAL EMBASSY OF SAUDI ARABIA
CULTURAL BUREAU
LONDON

سفارة المملكة العربية السعودية
الملحقية الثقافية
لندن

رقم الملف: S4353

إفادة

يُفيد المكتب الثقافي السعودي في بريطانيا بأن الطالبة/ **منال ابراهيم احمد فارح** (سجل مدني رقم **1032212795**) مبتعثة لدراسة الدكتوراه في تخصص العلوم الصحية في جامعة كوين ماري و بدأت الطالبة دراستها في 2010/09/22 لغاية 2013/01/31 ، ولازالت على رأس بعثتها.

وحيث أن الطالبة تحتاج إلى تعاونكم في إنجاح بحثها والذي هو بعنوان " **دراسه لاستكشاف مستوى الوعى الصحي والمشكلات التى تتعرض لها المراه السعوديه فيما يتعلق بصحتها الجنسيه والانجابيه".**

وقد مُنحت هذه الإفادة بناء على طلبها لتقديمها إلى سعادة وكيل الجامعة للدرسات العليا و البحث العلمي.

وتقبلوا خالص التحية والتقدير،،،

الملحق الثقافي بسفارة المملكة العربية السعودية في لندن
أ.د.غازي بن عبد الواحد المكي

630 Chiswick High Road, London W4 5RY Tel: +44 (0) 20 3249 7000 Fax: +44 (0) 20 3249 7001 E-mail: sacbuk@uksacb.org

الرقم : ..... التاريخ : ..... الموافق : ..... المرفقات : .....

www.uksacb.org

Letter to gain approval from the universities

Dear (name of the university)

I am writing to inform you that I would like to include your university in my research study. I am a Saudi student studying at Queen Marry university of London in the united Kingdome. As Part of my study as PhD is to complete a primarily data collection for my research my research title is**; an exploratory study of sexual and reproductive health knowledge, information-seeking behaviour and attitudes among Saudi women: A questionnaire survey of university students.**

The research aim is to explore women's knowledge, attitudes, behaviour and the characteristics of sexual and reproductive health needs among women in Riyadh city, the capital of Saudi Arabia at universities sitting. In addition, it aims to examine the fit between those needs and the existing programmes based on women perspectives.

I am expecting the research finding will be useful in development of appropriate and culturally acceptable sexual and reproductive health programs in Saudi Arabia and improve women knowledge and awareness regards this matter. The plane is to undertake exploratory study using anonymous self administrative questionnaire which will be distribute at your organization.

I attached to you an official letter from my supervisor at women research unit within Queen Marry university of London assuring you that I am a research student and asking for your support and help to distribute the questionnaires. I would be appreciative if you could inform us about the process required to allow me accessing your organization and my research to take place.

Your answer is essential in order to assist the study ethical approval process at Queen Marry university of London. I will be happy to provide you with any further information /details you require.

Thank you for considering my request and I am looking forward to hearing from you soon.

Manal Farih

Health Studies PhD student

Women's Health Research Unit

Centre for Primary Care and Public Health, Barts and The London School of Medicine and Dentistry

Email from the authors

1. **From:** Farideh Farahani

To: Manal Farih
Subject: Re: Reproductive Behaviour among Female
Date: 29 March 2012 09:04:02

Dear Ms Farih,

You are permitted to use some questions of my survey in your PhD thesis, upon Citing the source of them.

Best Regards

Farideh Khalaj Abadi Farahani, PhD.
Assistant Professor
Department of Population, Health and Family Planning
Population Studies and Research Centre in Asia and the Pacific
No. 4, 2nd Behestan St., Pasdaran Ave.,
Tehran, Iran,
Code: 1946893451

2. **From:** Hilal Ozcebe

To: Manal Farih

Subject: Re: 2007 TURKEY YOUTH SEXUAL AND REPRODUCTIVE HEALTH Survey

Date: 21 April 2012 12:58:14

Dear Manal Farih,

The research group of 2007 Turkey Youth Sexual and Reproductive Health Survey would be appreciate the questionnaire of the survey used in academic Studies. You can also use our questionnaire in your research by listing in the References.

Best regards.

Hilal Ozcebe, MD, PhD
Dept. of Public Health
Faculty of Medicine
Hacettepe University
Ankara, Turkey

Systematic review protocol

Sexual and reproductive health knowledge and information seeking behaviour among female university students in Middle Eastern countries: protocol for a systematic review of publishes literature

Introduction

Improving sexual and reproductive health considered as the most effective technique to promote equity as well as sustainable development to achieve the Millennium Development Goals (MDGs).

> "Reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents and other relevant UN consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing, and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health. They also include the right of all to make decisions concerning reproduction free of discrimination, coercion, and violence. Full attention should be given to promoting mutually respectful and equitable gender relations and particularly to meeting the educational and service needs of adolescents to enable them to deal in a positive and responsible way with their sexuality" (UNFPA,1994)

Hughes and McCauley (1998) have noted demand is growing for expanded sexual and reproductive health programmes for young people in developing countries. They hint at clinics are usually seen as the reasonable structure and source to provides sexual and reproductive health education but they are most of the time not useful, a case study from south Africa and Senegal shows that when young people approaches those clinics to obtain help or service they frequently criticize them or refused give them information. Another example from Thailand that confirms previous statement is young people usually reluctant to approach the clinics to seek help or advice for their sexual and reproductive health issues due to their fear of seen by family members or their neighbours.

Definitions

We adapted the definition of reproductive health from UN. Report of the International Conference on Population and Development, Cairo, 5—13 September 1994. New York: United Nations, 1995, for the purpose of this review because it comprises sexual health as well.

> "*Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant. In line with the above definition of reproductive health, reproductive health care is defined as the constellation of methods, techniques and services that contribute to reproductive health and well-being by preventing and solving reproductive health problems. It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counselling and care related to reproduction and sexually transmitted diseases*" (UN,1994).

Primary Objective

The objective is to carry out a systematic review of the literature to collect and summarise information on the level of female university student's knowledge and awareness concerning sexual and reproductive health matters plus, their information seeking behaviour.

Population

- Female university students in their reproductive age from (18-45) years old at the time of interview/survey.

Intervention

Intervention that promote or included:

- Sexual health.
- Reproductive health.
- Study design.
- From the year 2000 onwards.
- Include quantitative studies.

Outcomes

Sexual and reproductive health:

- Knowledge.
- Attitudes.
- Beliefs.
- Practice.
- Behaviour.

Secondary objectives

To identify where possible, the available evidence for the following questions:

1. What studies had been done to identify female university students sexual and reproductive health needs and problems in developing countries especially in the Middle Eastern countries.
    - Did these studies identify the factors that affect women sexual and reproductive health?
    - Are there any facilities available to provide sexual and reproductive health?

Methods and searching strategy

This systematic review aims to synthesise quantitative studies relating to female university students knowledge and awareness on sexual and reproductive health.

- Search will be conducting using electronic Databases such as; web of knowledge, PubMed, PsycINFO, Ovid, EMBASE and CINAHL.

- Various combination of searching terms will be used for this purpose these terms will be divided into 3 category; **population**, **sexual and reproductive health** and **information**. The terms that will be used are; 'women, woman', 'university -students, 'Arab countries', 'Middle East', 'female, females' 'health -education', 'health -promotion', 'sexual -health', 'reproductive -health', 'knowledge', 'sex -education', 'awareness', 'information' these key words will be combined with OR / AND.
- The reference lists of the selected articles will be also review for relevant studies.
- As well as searching other relevant internet resources.

First the studies will be scan based on the title and the abstract. Then they will be filtered again after reading them and decide if they fulfil the inclusion criteria's and meet the research aim and objectives.

Inclusion criteria

- All studies that included a primary focus on female university student's knowledge, beliefs, attitudes and practices regarding their sexual and reproductive health (SRH).
- Primary research.
- Studies that conducted in Middle Eastern countries.
- Studies that reported a clear detailed study design and data collection procedures.
- Studies that reported clear key findings in relation to factors that may influence women SRH.
- Including women's only in their reproductive age.
- If the studies include males and females, female data will be review.
- Studies published from 2000 to current year.
- Age group 18-45 years old.
- All language.

Exclusion criteria

- Editorials, book reviews, bibliographies, resources or policy documents, letters, expert opinion, systematic review, narrative review and reports.
- Pre -2000.
- Data from men +women together.
- Women with any learning disability.
- Homosexual women.
- Studies with women who are over 50 years.
- Studies related to fertility or abortion.
- Studies related to HIV/AIDS.
- Studies that focus only on pregnancy and pregnancy outcomes.
- Studies report on sexual and reproductive health knowledge or educational programs among school age student.
- Studies on menopause, sexual dysfunction and female genital mutation.
- Studies evaluating intervention programmes.

The Quality assessment criteria; based on EPPI-Centre criteria

- **Explicit account of theoretical framework and inclusion of a comprehensive literature review**: does the study provide justification for the study focus.

- **Clearly stated the aims and the objectives**: does the study explicitly and clearly state the aims of the study?

- **A clear description of context**: does the study adequately describe the specific circumstances under which the research was developed, carried out and reported?
- **A clear description of sample**: does the research provide adequate details of the sample used in the study including complete details of sampling and recruitment?

- **A clear description of methodology**: including data collection and data analysis including details on methods used for data collection and analysing.

- **Evidence made to establish the reliability and validity of data analysis**: is there any attempt made to assess the validity and reliability of the data analysis.

- **The inclusion of sufficient original data to mediate between data and interpretation**: the report should present sufficient data for example, tables, and direct quotations from interviews. Is there a clear integration between the data and the interpretation and Conclusion?

Data extraction information that can be used

General information:

- Date of data extraction.

- Identification features of the study such as:

  - Record number (to uniquely identify study)
  - Author
  - Article title
  - Citation
  - Type of publication (e.g. journal article, conference abstract)
  - Country of origin

Study characteristics:

- Aim and objectives of the study.
- Study design.
- Study inclusion and exclusion criteria.
- Recruitment procedures used (e.g. details of randomisation, blinding).
- Unit of allocation (e.g. participant, GP practice etc.).
-

Participant characteristics:

- Characteristics of participants
  - Age
  - Gender
  - Ethnicity
  - Socio-economic status
  - Disease characteristics
  - Co-morbidities
  - Number of participants in each characteristic category for intervention and control group(s) or mean/median characteristic values (record whether it is the number eligible, enrolled, or randomised that is reported in the study)

Outcome / results:

- Component of assessment/ analysis.
- Statistical method used.
- Knowledge
- Attitudes.
- Beliefs.
- Practice.
- Behaviour.
- For all intervention group and control group.

Scoring

1- Knowledge scoring

Section 4: Sexual & Reproductive Health Knowledge

(Score 1 point for each correct answer and 0 for each incorrect or don't know answer)

Statements	True	False	Don't know
4.1 A woman can get pregnant the very first time that she has sexual intercourse.	**1**	**0**	**0**
4.2 Condoms are an effective method of protecting against HIV.	**1**	**0**	**0**
4.3 Condoms are an effective method of preventing pregnancy.	**1**	**0**	**0**
4.4 The oral pill is an effective method of preventing pregnancy.	**1**	**0**	**0**
4.5 Women can get pregnant through kissing or touching.	**0**	**1**	**0**
4.6 Withdrawal is an effective method of preventing pregnancy.	**0**	**1**	**0**
4.7 Within the menstrual cycle, there is a period during there is a high possibility of pregnancy	**1**	**0**	**0**

SECTION 6: Contraception knowledge

(Score 1 point for each method known)

Methods	Yes	No
Female sterilization	**1**	**0**
Pill	**1**	**0**
Intrauterine device (IUD)	**1**	**0**
Implant	**1**	**0**
Lactation amenorrhea method	**1**	**0**
Injection	**1**	**0**
Condom	**1**	**0**
Male sterilization (Vasectomy)	**1**	**0**
Diaphragm, Foam, Jelly, Suppository	**1**	**0**
Rhythm or Calendar Method	**1**	**0**
Withdrawal	**1**	**0**

Section 7: Sexually transmitted diseases and HIV knowledge

(Scored 1 point for each diseases known, 0 for don't know)

STD	YES	NO
Gonorrhoea	**1**	**0**
Syphilis	**1**	**0**
Chlamydia	**1**	**0**
HIV/AIDS	**1**	**0**
Genital herpes / sore	**1**	**0**
Don't know any	**0**	**0**

7.3 Which symptoms do you think someone with a sexually transmitted disease may have?

(Score 1 point for each symptom identified, 0 for don't know)

symptoms	YES	NO
No symptoms	**0**	**0**
Abdominal pain	**1**	**0**
Genital itching	**1**	**0**
Redness in the genitals	**1**	**0**
Genital lesions/sores	**1**	**0**
Pain	**1**	**0**
Burning sensation during urination	**1**	**0**
Discharge from penis	**1**	**0**
Vaginal discharge	**1**	**0**
Weight loss	**1**	**0**
Infertility	**1**	**0**
Don't know	**0**	**0**

7.4 How do you think one can be infected with a sexually transmitted disease and HIV?

(Score 1 point for identifying correct mode of transmission and 0 if not)

Mood	YES	NO
Sexual intercourse with sex worker	**1**	**0**
Sexual intercourse with many partner	**1**	**0**
Not using condom during intercourse	**1**	**0**
Blood transfusion	**1**	**0**
Sharing needles	**1**	**0**
Kissing	**0**	**1**
Using public toilet	**0**	**1**

7.5 Is there anything that a person can do in order to avoid sexually transmitted diseases and HIV?

Answer	Score
YES	1
NO	0
Don’t know	0

7.6 Can a person get the HIV virus from mosquito bites?

Answer	Score
YES	0
NO	1
Don’t know	0

7.7 Could shaking hands or hugging transmit HIV?

Answer	Score
YES	0
NO	1
Don’t know	0

7.8 Can people get the HIV virus by sharing food with a person who has HIV?

Answer	Score
YES	0
NO	1
Don’t know	0

7.9 Do you think HIV is curable?

Answer	Score
YES	0
NO	1
Don’t know	0